

**KEEPING PAPER OUT OF
ONTARIO LANDFILLS:
PROGRESS AND ACTION**

A Report from the Ontario
Paper Fibre Strategy Team

OCTOBER 1993



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A Note on Data

The figures and statistical analyses presented in this report are based on the best information available. Estimates are conservative and considered valid in accordance with the knowledge and experience of the members of the Paper Fibre Strategy Team. It has been assumed that the data available from Quinte Regional Recycling has some applicability across the province. Industry recycling estimates have been used for the IC&I sector in the absence of published information.

Abstract

In October 1992, the Waste Reduction Office of the Ontario Ministry of Environment and Energy invited a group of representatives to share their views on ways to keep paper fibre out of Ontario landfills. The group, which is called the Ontario Paper Fibre Strategy Team, is made up of a variety of representatives from industry, labour, interests groups, municipalities and government.

The strategy team's goal was to develop a strategy to divert, through the 3Rs, additional paper material from disposal and to promote the development of strong and stable markets for secondary paper fibre.

This report summarizes waste management and diversion activities practised by the paper fibre industry in Ontario. It identifies the general barriers to greater diversion and describes proposed action plans to overcome these barriers. The action plans are grouped under four main themes: education and information; reduction and reuse; market and infrastructure development; and, residue management. The implementation of these action plans and the role of the strategy team are also discussed.

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Key to Abbreviations and Acronyms

AMO	Association of Municipalities of Ontario
AMRC	Association of Municipal Recycling Co-ordinators
BOMA	Building Owners and Managers Association
CAC	Consumers Association of Canada
CARI	Canadian Association of Recycling Industries
CCME	Canadian Council of Ministers of the Environment
CDMA	Canadian Direct Marketing Association
CEP	Communications, Energy and Paperworkers Union
CMPA	Canadian Magazine Publishers Association
CPC	Canada Post Corporation
CPIA	Canadian Printing Industries Association
CPPA	Canadian Pulp and Paper Association
EC	Environment Canada
EMRC	Energy, Mines and Resources Canada
FC	Forestry Canada
FERIC	Forest Engineering Research Institute of Canada
FIAG	Forest Industry Action Group (Ontario Ministry of Natural Resources)
GPMC	Grocery Product Manufacturers of Canada
GIPPER	Governments Incorporating Purchasing Policies to Eliminate Refuse
HWC	Health and Welfare Canada
IC&I	Industrial, commercial and institutional
ISTC	Industry, Science and Technology Canada
MBS	Management Board Secr�tariat (formerly the Ministry of Government Services)
MEDT	Ministry of Economic Development and Trade (formerly the Ministry of Industry, Trade and Technology)
MISA	Municipal-Industrial Strategy for Abatement (Ontario Ministry of the Environment and Energy)
MNR	Ontario Ministry of Natural Resources
MOEE	Ontario Ministry of Environment and Energy
OBB	Old boxboard
OCC	Old corrugated containers
OCNA	Ontario Community Newspaper Association
OEN	Ontario Environment Network

OFIA	Ontario Forest Industries Association
OMG	Old magazines
OMMRI	OMMRI: Corporations in Support of Recycling
ONP	Old newspapers
OPPUG	Ontario Printing Paper Users Group
OPSBA	Ontario Public School Boards' Association
PAPRICAN	Pulp and Paper Research Institute of Canada
PFST	Paper Fibre Strategy Team
PPEC	Paper & Paperboard Packaging Environmental Council
RCC	Retail Council of Canada
RCO	Recycling Council of Ontario
3Rs	Reduce, reuse and recycle
SWM	Solid waste management
WRAC	Waste Reduction Advisory Committee
WRAP	Waste Reduction Action Plan
WRO	Waste Reduction Office

Executive Summary

Ontario's efforts at reducing its 2.4 million tonnes of paper waste are paying off. Estimates show greater than 30 percent diversion of paper from disposal and there is still room for improvement.

Additional paper can be diverted by increasing the number of paper materials collected by municipal Blue Box programs. The paper types that can be added to more recycling programs include: OMG (old magazines) & catalogues, fine paper, OBB (old boxboard) and OCC (old corrugated containers). One of the challenges however, is to collect and process more materials, without significantly increasing municipal waste management costs.

In the IC&I sector, increased collection will result from the province's new waste reduction regulations which identify those establishments that must separate waste and carry out waste audits and reduction work plans. The achievements that result from the regulations will be monitored and options for future changes will be recommended to the Ministry of Environment and Energy.

This report contains 19 plans that make up Ontario's paper fibre strategy. The strategy was developed by the Ontario Paper Fibre Strategy Team, which has been meeting since the fall of 1992. The team's goal was to develop a strategy to divert more waste paper from disposal.

To determine where to focus paper diversion activities and to measure the diversion being achieved, the team recommends that a database of waste paper quantities and flows be set up and maintained. This will help monitor the amount of paper waste generated, reused, recycled and sent for disposal. An ad-hoc committee is being established to review available data and set up the database.

More information and encouragement in the residential and IC&I sectors on how and where waste can be reduced, reused and recycled will further assist efforts at meeting provincial waste diversion targets. Included in the action plans are a number of recommendations regarding education and awareness for municipalities, businesses and institutions.

Paper makes up about 29 percent of the municipal solid waste stream in Ontario. The strategy team focused on the paper and paper products that make up over 80 per cent of this paper waste stream. The remainder includes paper products that currently are not easily recovered or readily recyclable such as tissue and sanitary papers, wallpaper and waxed products.

The action plans developed by the team provide advice to the agencies involved on how to divert waste paper from disposal. The team suggests that those agencies identified in the Table below take the lead role for a particular action plan and make a commitment to implement it.

To keep the momentum and co-operative spirit of the group going, the lead agencies will be asked to report on their progress in April 1994.

Diversion rates will also be monitored so that achievements and opportunities can be assessed as we get closer to the year 2000.

Action Plan Summary

ACTION PLAN NO.	ACTION PLAN TITLE	PROPOSED LEAD AGENCY
1.	Establish data base for waste paper flows	WRO
2.	Establish milestones for paper fibre waste diversion	Environment Canada
3.	Catalogue 3Rs reference material in support of the paper strategy	WRO
4.	Develop reduction, reuse and recycling education for municipalities	AMRC
5.	Develop reduction, reuse and recycling education for the IC&I sector	OPPUG, CPIA, CMPA, PPEC, School, Hospital & Business Association
6.	Develop procurement policies in support of paper fibre diversion	MBS
7.	Development of a 3Rs "Code of Practice" for major paper product user industries	CMPA, CPIA, OPPUG, PPEC, RCC, CDMA
8.	Inventory Funding and Research Organizations to Promote research needs for waste paper diversion.	WRO
9.	Develop a strategy and action plan for addressing the environmental issues associated with print advertising	Print Advertising Committee
10.	Expand "Do Not Mail " service	CDMA
11.	Return of corrugated shipping container for reuse and/or recycling	Retail Council, Grocery Product Distributors
12.	Increase Municipal Source Separation	AMRC
13.	Increase IC&I Source Separation	OWMA
14.	Support bans from municipal landfills where diversion programs exist	AMRC
15.	Design and deliver market development workshops	WRO, MEDT
16.	Coordinate task groups to further divert OBB and OCC from waste stream	PPEC
17.	Maximize usage of old boxboard in all boxboard packaging	PPEC
18.	Develop markets for low grade secondary paper fibre: ethanol and heating oil conversion; home insulation; building materials	PPEC
19.	Identify and establish options for managing paper mill residue	Affected mills/WRO

Refer to the Action Plans in Appendix C of the Paper Fibre Strategy for more detail.

Introduction

Significant strides have been made in diverting paper from the waste stream over the last few years. Recycled content has been increased, glue and ink formulations have been modified, new technology has been established and more paper is being collected for reuse and recycling. However, much remains to be done.

In October 1992, the Ministry of Environment and Energy established a multi-stakeholder committee to develop a strategy for diverting more paper from disposal. The committee comprised representatives of paper and paper product manufacturers, recycling coordinators, haulers, users, environmental groups, labour and government (local, provincial and federal).

Over a number of months, the committee and its sub-groups discussed many issues and ideas ranging from markets and contaminants, to product stewardship, who pays and the possible banning of composite packaging. Paper has been recycled for years and the major issues were less that of market development and more related to increasing reduction and reuse, and collecting greater quantities of paper for recycling.

Two significant initiatives have provided a basis for furthering the reduction, reuse and recycling of paper: the National Packaging Protocol and Ontario's 3Rs regulations. Most of the provisions will begin to apply six to 12 months after the regulations become law.

The National Packaging Protocol established goals to reduce packaging sent for disposal by 50 per cent by the year 2000. Organizations such as PPEC (Paper & Paperboard Packaging Environmental Council) are responding to this challenge by breaking new ground in the diversion of paper based packaging.

This paper strategy builds on federal and provincial 3Rs initiatives. "Keeping Paper Out of Ontario Landfills" is a report by Ontario's Paper Fibre Strategy Team that outlines the nature of the paper industry, current 3Rs initiatives and the barriers to them, and proposed activities to divert more paper fibre from disposal.

Chapter 1 outlines the membership and organization of the

strategy team and describes the process undertaken in developing the strategy.

Chapter 2 discusses the paper industry in Ontario and the products it produces. This chapter provides the basis for understanding the diversity and amount of paper that Canadians consume and leads into the discussion of secondary paper available for recycling and current 3Rs initiatives in **Chapter 3**.

Chapter 4 covers the barriers, and the actions proposed by the strategy team to overcome them. Unresolved issues are also discussed.

Chapter 5 answers the question: where do we go from here? It outlines the action plans, identifies the lead agencies and describes how to maintain the participants' action.

The report concludes with a glossary, bibliography and a series of appendices, which include: action plans, a table listing the amount of time required to complete the plans, and a list of the strategy team members.

1 Framework of a 3Rs Strategy

In October 1992, the Waste Reduction Office of the Ministry of Environment and Energy, invited a group of stakeholders to share their concerns and perspectives on ways to increase the diversion of paper from the municipal solid waste stream. Paper has been identified as a major component of the waste stream and through reduction, reuse and recycling, can make a substantial contribution to the provincial waste diversion target of 50 per cent by the year 2000.

The stakeholders involved in the paper fibre strategy development represent a variety of key groups from: industry (both manufacturers and recyclers), government, labour, users, interest groups and agencies (see Appendix B - Membership List).

1.1 Goals

Terms of reference were proposed and accepted by the Paper Fibre Strategy Team (see Appendix A - Strategy Team Terms of Reference). The objectives of the strategy team were to:

- develop a strategy to divert additional waste paper materials from disposal; and
- promote the development of strong and stable markets for secondary paper fibre.

The role of the strategy team was to:

- provide a forum to identify issues, concerns and solutions to manage waste paper;
- create a spirit of co-operation among stakeholders to further 3Rs solutions;
- encourage effective communications among stakeholders; and
- develop a strategy for the stakeholder groups, to divert

paper materials from disposal and promote strong secondary paper markets.

1.2 Scope of the Exercise

The diversion strategy focus was restricted to the reduction, reuse and recycling of paper and paperboard. The diversion of other types of fibre such as wood, textiles and fibreglass were not considered in this strategy. Forestry issues and practices were also not considered within the scope of the exercise as these are beyond the agreed mandate of the strategy team.

The key issue of product stewardship and the financing of 3Rs programs is presently under discussion within and between governments and industry and is not dealt with in the strategy.

1.3 Task Groups

The strategy team was divided into four groups based on paper categories. In December 1992, when these groups first met, the specific types of papers covered by each group were selected to reduce the potential for overlap in discussions.

ONP Group

This group addressed the diversion of old newspapers (and newsprint flyers), magazines, catalogues and telephone directories.

Fine Paper Group

This group addressed printing and writing papers including computer printout (CPO), envelopes and print advertising.

OCC Group

This group addressed corrugated containers and kraft bags and industrial sacks.

Boxboard Group

This group addressed boxboard packaging.

The mission statement of the four groups was to develop a 3Rs strategy to maximize the diversion of (paper or paperboard)

from the waste stream, on the basis of the 3Rs of waste management.

1.4 The Process

Having established the mission for each group and the paper types being addressed, the groups identified existing barriers to diversion, opportunities available and initiatives being carried out by various groups to advance the reduction, reuse and recycling of paper fibre in Ontario. This information, along with data on 3Rs achievements to date, provided the springboard for the development of action plans.

Suggestions were made on what more could be done to maximize the diversion of paper, and plans were developed for those suggestions.

The action plans continued to evolve over time with comments from the Paper Fibre Strategy Team. A number of the action plans target all paper types and others target a specific secondary material.

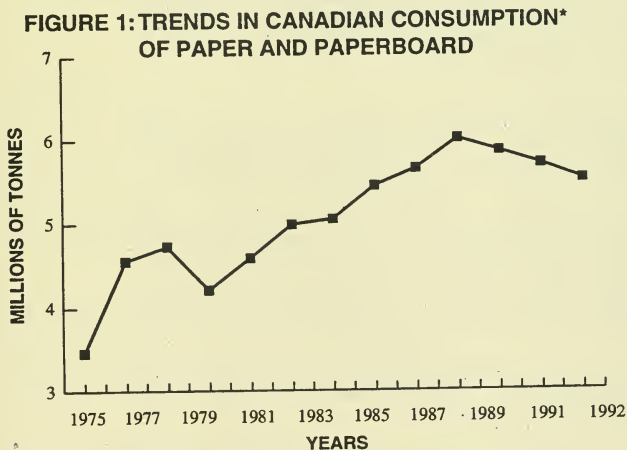
The action plans discussed in Chapter 4 and presented in Appendix C, are the result of this process. The estimated time to complete the implementation of each plan is outlined in Appendix D. These action plans make up Ontario's paper fibre strategy.

2 Industry Overview

2.1 The Paper Industry

Some 65 companies, operating more than 145 mills, make up the Canadian pulp and paper industry. In 1991, these mills produced about 24 million tonnes of pulp and paper products. The total value of these products came to \$19.5 billion in the same year.

Although Canadian consumption of paper and paperboard has increased since 1975, only about 20 per cent of the pulp, paper and paperboard manufactured in Canada is consumed domestically (see Figure 1 - Trends in Canadian Consumption of Paper and Paperboard). The remaining 80 per cent is exported to customers all over the world. This amount of exports has an effect on the availability (supply) and need (demand) for waste paper in Canada.



* Calculated as the sum of domestic shipments and Canadian imports of paper and paperboard. This does not account for imports of in-use packaging

Source: CPPA Reference Tables, 1991

The industry produces many different products. The largest tonnage is newsprint. It accounts for about 45 per cent of the industry's shipments and is sent to newspaper publishers around the world. Canadian mills produced almost nine million tonnes of newsprint in 1991. About eight million tonnes were exported to six continents, making the Canadian industry the world's leading exporter of newsprint.

Various grades of wood pulp, representing some 30 per cent of the industry's shipments, are the second largest product. Wood pulp is converted into paper products, textiles and other goods.

Paperboard, tissue and sanitary papers, printing and writing papers, and wrapping and building papers, make up the remaining segments of the industry's shipments. In addition to pulp and paper products, some companies also produce lumber, plywood and building board.

In 1991, the industry provided direct employment to 72,000 people in Canada (see Table 1 - Selected Statistics for the Pulp and Paper Industry). The industry also generates thousands of jobs in associated and service industries.

The pulp and paper industry makes the single largest net contribution to Canada's export earnings. The products of the industry are vehicles for communicating ideas, carrying out business, recording events, and moving and marketing goods.

The industry has been in existence in Ontario since the turn of the century. The first paper mill in Upper Canada began operation in 1826 in Dundas, Ontario using rags as fibre, but it was not until the first decade of the 20th century that mills began to operate in Thorold, Trenton and Sault Ste. Marie (see Figure 2 - Paper and Board Mills in Ontario).

In 1991, Ontario's pulp and paper mills employed 14,700 people and produced \$2.03 billion worth of products (OFIA, Price Waterhouse Report, 1992).

The use of secondary paper by Canadian mills has more than doubled over the last decade. Recovered paper consumed by paper and board mills grew from 1.2 million tonnes in 1982 to 2.7 million tonnes in 1992. CPPA (the Canadian Pulp & Paper

Association) estimates that Canadian mills will recycle 3.5 million tonnes of recovered paper by 1994.

Selected Statistics for the Pulp and Paper Industry (1991)	Canada	Ontario
	Million Tonnes	
Mill Capacity for Pulp and Paper	28.5	6.74
Production (% Production of capacity - 86 per cent)	24.5	3.9
	No. People	
Direct Employment in Pulp and Paper Mills (Does not include forest jobs)	72,000	14,700
	Billion Dollars	
Value of Paper and Paperboard Sales	\$10.9	\$1.3
Value of Paper and Paperboard Exports	\$8.7	\$3.3

References: CPPA Annual Report
Price Waterhouse, The Forest Industry in Ontario, 1991.

Table 1

2.1 Paper Products

Paper making starts with the pulping process. Pulping or separating the fibres can be accomplished by mechanical or chemical means or a combination of the two. The pulping process selected depends on the fibre (hardwood, softwood, recyclable paper or non-wood materials such as rags, linen or cotton), the machinery in place, and the end-product produced.

When recyclable paper is used, it first may require removal of the ink. Paper is made by mixing pulp with water, placing an even layer of the mixture on a screen, and removing the water through gravity, vacuum action, pressure and heat. As the water is removed, the cellulose fibres bond to form a continuous web of paper.

Computer controls monitor the paper making process and make adjustments to ensure evenness, an appropriate and uniform moisture content, the proper mixing and proportioning of pulps and chemicals, sheet formation and thickness. Some grades of

PAPER & BOARD MILLS IN ONTARIO



Figure 2

Newsprint

- 24 Atlantic Packaging Products*
- 32 QUNO Corp.*
- 5,6 Abitibi-Price Inc.
- 14 Abitibi-Price Inc.
- 1 Boise Cascade Canada Inc.
- 4 Canadian Pacific Forest Products Ltd.*
- 11 Spruce Falls Power and Paper Co.*

Printing and Writing Papers

- 19,33 Domtar Inc.
- 34 Noranda Inc.*
- 7 Provincial Papers
- 3 Canadian Pacific Forest Products
- 15,18 E.B. Eddy Forest Products

Containerboard

- 8 Domtar Inc.
- 25 Atlantic Packaging Products
- 22,26 Domtar Inc.
- 20 Sonoco Ltd.
- 16 MacMillan Bloedel Ltd.

* Mills with de-inking capacity

Boxboard Packaging

- 27 Cascades Paperboard
- 30 Sonoco Ltd.
- 21 Strathcona Paper Co.

Tissue and Sanitary Papers

- 28,29 Atlantic Packaging Products
- 17,35 Kimberley Clarke (Canada) Ltd.

Groundwood Papers

- 2 Boise Cascades (Canada) Ltd.
- 12 St. Mary's Paper Inc.

Construction Products

- 36 Beaver Wood Fibre Company Ltd.
- 37 Domtar Inc.
- 23 IKO Industries

Molded Paper Products

- 31 Cascades Dominion Ltd.

Pulp

- 9 Kimberley Clarke (Canada) Ltd.
- 10 J.R. Marathon Ltd.
- 13 Mallette Kraft Pulp and Paper

paper may be coated with clay, binders or other fillers to improve their surface properties and printing qualities. The paper may also be waxed and waterproofed.

The paper produced is then cut, sorted, inspected, packed and finally shipped to customers. Thousands of paper products are manufactured and consumed by Canadians. Figure 3 shows the quantities of major paper products produced and consumed in Ontario.

Containerboard

This product comes in multi-ply, solid and corrugated board and is used to make boxes and other containers for shipping goods to market. The container must be strong enough to protect the goods when shipped or stored. About five per cent of domestic shipments are waxed corrugated containers used in the transport of produce, meat, fish and poultry (imports add to this number). The wax acts as a moisture barrier.

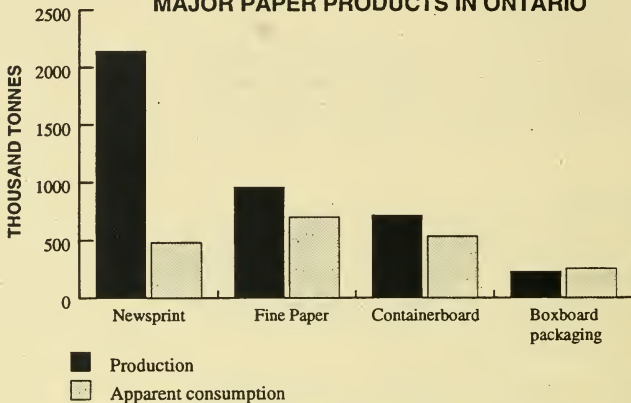
Containerboard comprises two components: corrugating medium and linerboard. Corrugating medium is the wave-like material used as the middle ply in shipping cases. Linerboard is the material used on the top and bottom of the sandwich. It is rigid, strong and firm, and is manufactured in two forms: kraft liner, produced from kraft pulp; and recycled liner, made from recycled fibres.

To be converted into a container, the containerboard sheets must be printed and cut and creased to form the folds and tabs that will be glued together to make the container.

The combination of linerboard on the outside and the corrugating medium in the middle, results in a light and strong finished product. Paper is a widely used packaging material (see Figure 4 - Packaging Material Use in Canada) with containerboard universally used to ship manufactured products to domestic and foreign markets.

Ontario produces just over 700,000 tonnes of containerboard each year for domestic use and export. Although it is difficult to measure the amount of imported containers (both filled and unfilled), it is estimated to be about 150,000 tonnes. The reuse of corrugated containers is also a growing industry in Ontario. It is

FIGURE 3: PRODUCTION* AND CONSUMPTION OF MAJOR PAPER PRODUCTS IN ONTARIO**

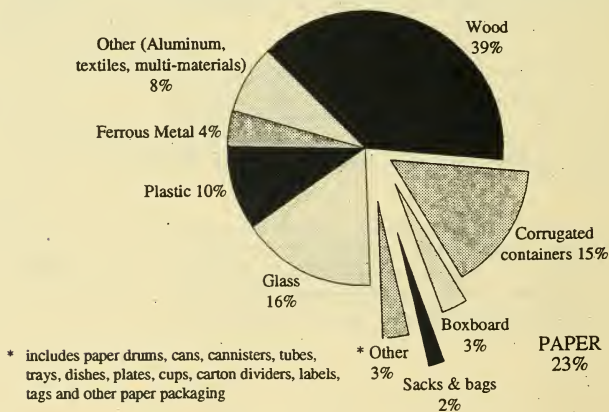


* Calculated as the sum of domestic shipments plus exports

** Calculated as the sum of domestic shipments plus imports

Reference: estimates derived from a compilation of data by Environment Canada and PPEC.

FIGURE 4: PACKAGING MATERIAL USE IN CANADA 1990



Reference: NAPP News, 1992

estimated that over 200,000 tonnes were reused and 500,000 tonnes were recycled in 1992.

Secondary or recycled fibres may be used in the manufacture of corrugating medium. Almost half of the corrugating medium is made from secondary or recycled fibre, principally OCC (old corrugated containers) and cuttings from converting plants.

Linerboard also may contain up to 100 per cent secondary fibre. The fibre will be cuttings from the converting plant or other waste corrugated board. Corrugated containers can be lightweighted, but only to the extent that it does not affect the strength and performance of the container.

Boxboard

Boxboard is a low grade board made up of short fibres. The board is formed into rolls and sheets at the mill, then sent to a converter who cuts and folds them into the desired shape.

There are three types of boxboard that each serve a specific need: folding cartons, set-up boxes and miscellaneous boxboard.

Folding cartons carry products such as cereal and detergent, milk and juice. Set-up boxes are used when a more rigid container is required, such as for shoe and candy boxes. Miscellaneous boxboard includes many kinds of paperboard used for hundreds of products ranging from pie plates to gypsum wall boards.

Boxboard is used to protect, contain as well as provide information on the product. It is of lightweight construction and is usually made from 100 percent recycled fibre (boxboard trim, used office papers, old corrugated containers and old newspapers).

Currently, there are 15 boxboard packaging mills in Canada with the bulk of production for the domestic market (91 percent) centred in Quebec and Ontario. Ontario's three boxboard packaging mills use 100 per cent recycled fibre.

Boxboard trim (or leftover) is sent back to a boxboard mill to be re-pulped and converted into new boxboard. The amount of post-consumer or OBB (old boxboard) that can be used to make new boxboard is unknown, but boards made with 20 per cent OBB are performing well. Ontario is leading the world in this respect.

Forget the word "cardboard". It confuses householders when they are asked to separate paper for curbside collection. The correct terms are old corrugated containers (OCC) - the container with the wavy middle layer - and boxboard packaging - the lightweight detergent, cereal or food carton.

Paper & Paperboard Packaging Environmental Council (PPEC) is a national association of producers and converters of paper-based packaging formed in 1990 to divert used paperboard fibre from disposal.

Brandowners are also being urged to specify higher OBB content in their boxboard packaging.

Apart from possible contaminants such as food and detergent residues, the main technical obstacle when recycling OBB is the glue and wax added by converters. The glue is used to seal the cartons and the wax to protect the product.

As in the case of corrugated containers, boxboard packaging can be made thinner, but it must continue to protect the product inside.

Newsprint

Destined for the newspapers of the world, newsprint is a vital communications medium for publishers and their readers. Since longevity is not critical to newspapers, mechanical pulp is the chief ingredient of newsprint. Compared to many other families of papers, newsprint is relatively inexpensive to produce. The special qualities required of newsprint are that it must be opaque and able to absorb ink very quickly.

In 1991, Canada consumed about one million tonnes of newsprint; about 10 percent of what is produced in Canada. Although consumption is cyclical, in 1991, Ontario consumed 480,000 tonnes of newsprint -- about half of the newsprint consumed in Canada. Approximately fifty per cent of Ontario's newspapers were collected and recycled in 1991.

While newsprint is used to produce a variety of paper products including newspapers, inserts, flyers and writing tablets/paper, over 95 per cent of the newsprint consumed in Canada goes into the printing of newspaper.

Recycling old newspapers is not new. It has been a common activity in the industry for decades. What is new however, is the use of increasing quantities of post-consumer ONP and other fibre (such as magazines) in producing newsprint.

Most old newspapers are recycled into newsprint. In fact, increased demand for recycled content newsprint in the U.S. has stimulated investment of \$1.2 billion within the Canadian pulp and paper sector, primarily in de-inking capacity.

To maintain product quality, a clean, source separated ONP supply

Hot melt glues can create a "stickie" situation for recycling mills. PPEC explained the problem to Canada's adhesive suppliers and offered them the opportunity to develop new formulations. Suppliers responded and some of these are now commercially available.

is essential. About eight to 10 per cent of ONP used in a mill ends up as sludge following de-inking. This material is used as a soil conditioner or is used to make industrial adsorbents. It is also disposed of in landfills or incinerated. Research is under way to find additional uses for the sludge.

The de-inking technology used in the mills producing recycled content newsprint is enhanced by the use of old magazines which contain a clay coating.

Printing and Writing Paper

This classification of paper covers several hundred grades and generally includes: magazines, fine paper, computer print out (CPO), telephone directories, envelopes and other stationery. In 1991, Ontario consumed 695,000 tonnes of printing and writing paper.

The finest grades of printing and writing paper are made from recycled rags but most commercial grades are made from chemical wood pulps.

De-inking this waste paper produces high quality fibre and for this reason, the current supply is used in recycling operations. This paper can be recycled into a wide variety of products such as tissue, fine papers, newsprint and paperboard.

In 1989, Canada produced 68,000 tonnes of office papers with some recycled content. Cuttings and trim from converting operations are also recycled as high grade de-inking recyclable paper or pulp substitutes.

Office papers and stationery however, can be subject to varying degrees of contamination because of the toners used in copiers and laser printers. Paper for facsimiles may contain thermal sensitive dyes. Envelopes have the potential for contamination from glue, latex adhesive, plastic window material and flexographic inks.

Magazines

Magazines are made primarily from coated printing paper. Annual consumption of coated papers in Ontario in 1989 was about 166,000 tonnes. Coated papers are used to make products like magazines, flyers and books.

Flexographic inks are made of fine particles covered with a water soluble polymer. The particles are small and hydrophilic. Once dispersed in the pulp, they re-attach themselves to the fibre in the flotation de-inking process. Hence they are not removed and reduce the brightness of the pulp.

Canadian magazines represent about 40 per cent of all the magazines sold in Canada. About 76,500 tonnes of magazines are consumed in Ontario each year.

Pre-consumer trimmings, the misprinted sections and trim from magazine and book publishers, are in strong demand by tissue and paperboard mills.

Recycled coated papers can be used in base sheets for coated papers, in newsprint and in mechanical printing grades. Besides the magazines that end up in households or IC&I establishments, wholesalers also take back unsold issues for recycling.

Telephone Directories and Catalogues

In 1993, Bell Canada distributed about 16,000 tonnes of telephone books in Ontario. The lightweight directory paper used for telephone books and catalogues is recyclable. But the inks and glues used by some manufacturers outside Ontario may impede their recyclability.

Telephone books made in Ontario use vegetable dye inks and water soluble glues. However, the technical problems of recycling coloured sections can limit their use by some consuming mills.

Tissue and Sanitary Paper

These products are almost all made for the domestic market. Canadian output has reached a level of around 500,000 tonnes per year.

There is a wide range of products which includes: facial tissue, napkins, towels and bathroom tissue. Over half of this is made from recovered paper.

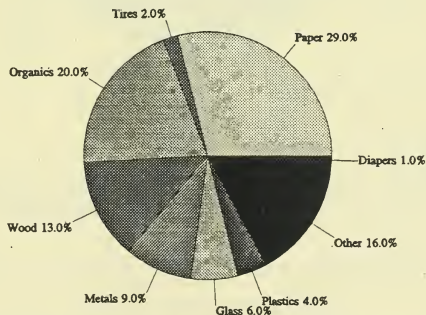
3 Current 3Rs Initiatives

Each year in Ontario, nearly nine million tonnes of MSW (municipal solid waste), representing about one-third of Canada's total, is generated from residential and IC&I (industrial, commercial and institutional) sectors. The Greater Toronto Area (GTA) generates about one-third of all Ontario's waste.

In 1990, a study was undertaken to develop a better picture of municipal solid waste management in Ontario in 1987 and 1989. This study by CH2M Hill and referred to in this chapter, was part of a larger study to assess the socio-economic impacts of the waste diversion objectives announced in 1989. Although the waste composition information may appear dated it remains a useful reference until more current data is collected.

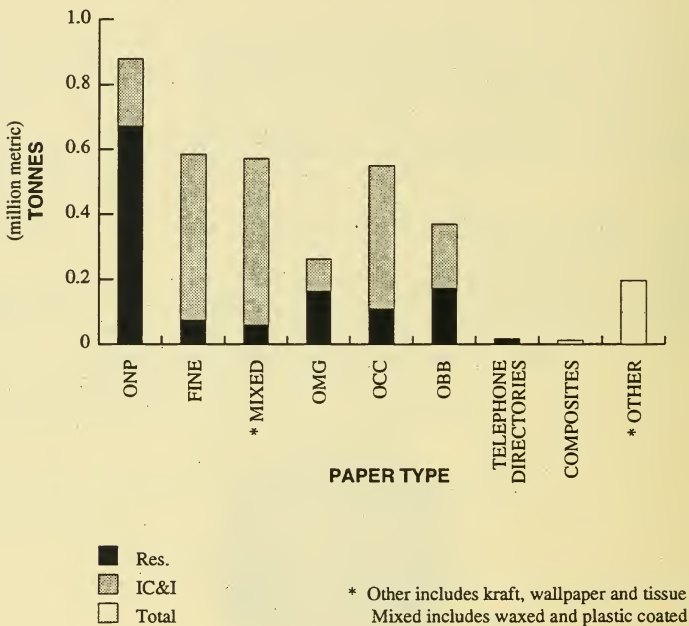
In 1989, paper made up about 29 per cent of Ontario's MSW stream (see Figure 5 - 1989 Waste Composition in Ontario). The largest quantity (by weight) of paper in the residential waste stream is ONP. In the IC&I sector, printing and writing papers and OCC account for the largest amount of waste (see Figure 6 - Waste Paper Generation Estimates From IC&I and Residential Sectors).

Figure 5: 1989 MUNICIPAL SOLID WASTE COMPOSITION IN ONTARIO
Combined Residential & ICI Sources
(by Weight)



Reference: The Physical and Economic Dimensions of Municipal Solid Waste in Ontario

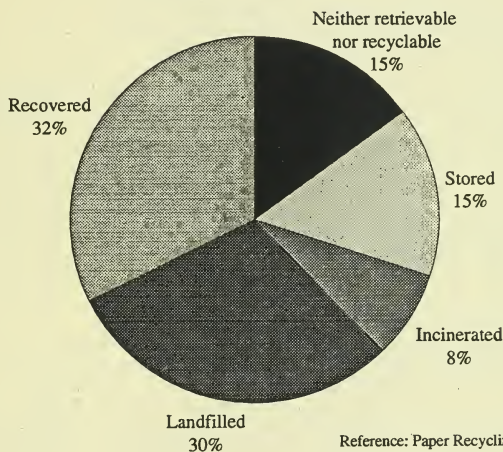
**FIGURE 6: WASTE PAPER GENERATION ESTIMATES FROM
IC&I AND RESIDENTIAL SECTORS IN ONTARIO
(1989 TONNES)**



Reference: The Physical & Economic Dimensions of Municipal Solid Waste Management in Ontario, 1991

In 1991, Canada consumed about 5.5 million tonnes of paper and paperboard. CPPA estimates that about 15 percent of paper products are stored (books), another 15 percent is considered neither retrievable nor recyclable (tissue) and the remaining 70 per cent are handled in various ways (see Figure 7 - Where Do Paper and Paperboard Products End Up in Canada?).

FIGURE 7: WHERE DO PAPER AND PAPERBOARD PRODUCTS END UP IN CANADA?



Reference: Paper Recycling in Canada 1992, CPPA

Over the last few years many changes have taken place in homes, institutions and businesses, in purchasing, process and disposal practices. Some of these initiatives are outlined below.

3.1 Reduction

Paper and paper products are being made with less fibre by thinwalling and lightweighting. Newspapers, telephone directories and packaging materials are some examples of where this is occurring.

A PPEC initiative led the Railways Association of Canada, for example, to review the strength requirements of corrugated containers shipped by rail. As a result of the review, the amount of paper fibre needed in corrugated containers shipped by rail has decreased by five to 10 percent. This measure alone will reduce production requirements by as much as 100,000 tonnes of fibre per year.

Other types of package re-design such as toothpaste tubes without the box and corrugated trays for soft drink cans that are then plastic wrapped are visible approaches to waste reduction at source. The concentration of some household products such as soap and detergent has also led to a reduction in packaging.

Advanced technology such as two-sided photocopiers and electronic communications is reducing the amount of paper waste produced. These communications include: electronic forms, voice mail and electronic mail messages.

People who pay their bills directly at the bank may also request that return envelopes not be sent with their bills. They may also ask associations and companies they deal with not to include their names on mail lists sold to other companies.

The Canadian Direct Marketing Association offers a "Do Not Mail" service for people that want to have their names removed from mailing lists used by their member companies. This reduces the amount of addressed unsolicited advertising.

Unaddressed advertising, is usually distributed by various businesses: Canada Post delivers about 27 per cent of Canada's advertising flyers, newspapers deliver about 46 per cent and private distributors deliver the remaining 27 per cent.

In 1992, the Recycling Council of Ontario launched a one-year "anti-junk mail" hotline for residents of Metropolitan Toronto. Local distributors participating in the project, called the "Right to Refuse" program, have agreed not to deliver any unsolicited unaddressed advertising to the households registered with the service. During the first six months of the project 8,118 calls were received.

Canada Post continues to deliver unaddressed advertising (such as

Electronic systems are going to be used for all customs forms needed to import automobiles and auto parts in Canada. The program will start in May 1994 and will eliminate almost all paper invoicing within 10 years.

Canada Post Corp. through its Delivery Needs Accuracy Program is working with large volume mailers to ensure they use accurate mailing lists. This has significantly reduced the amount of undeliverable mail.

flyers), since its business obligation is to deliver all mail. But some publishers and private distributors across Ontario will stop deliveries if requested.

3.2 Reuse

Reuse is defined as using an item again in its same form for the same or different purpose. Due to the nature of paper and paper products, its reuse potential is sometimes limited.

Newspapers are used in the home to clean windows and on the farm as animal bedding. Paper, envelopes and packaging are reused by individuals and companies. Used corrugated containers are being bought and resold by companies. About 30 per cent of them are reused in Ontario.

Packaging and waste audits as well as packaging and waste reduction work plans required under Ontario's new waste reduction regulations will also increase diversion through the first 2Rs - reduction and reuse.

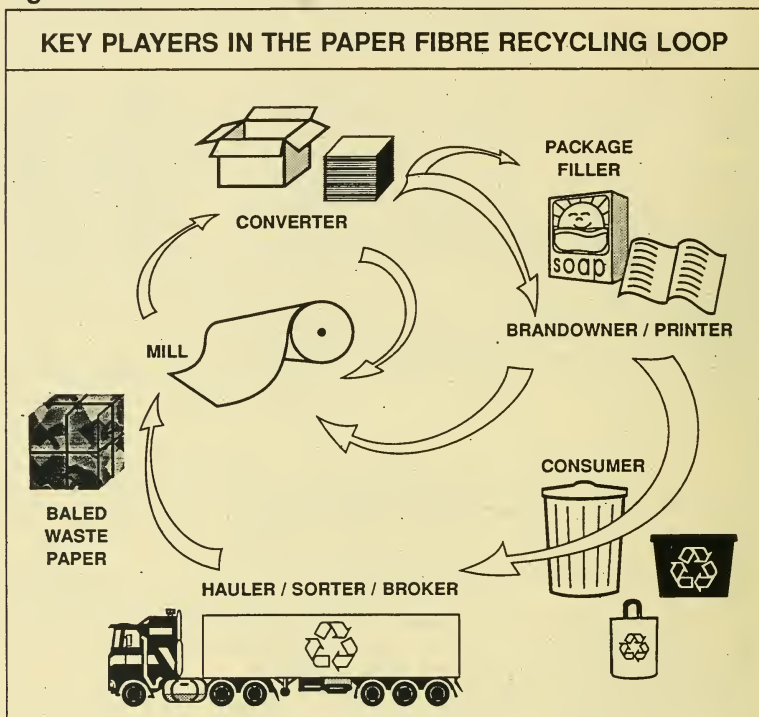
3.3 Recycling

Recycling includes the collection, sorting and delivery of waste materials to an end market where they are manufactured into a new product. Many players are involved in the process (see Figure 8: Key Players in the Paper Fibre Recycling Loop). Private firms or municipalities collect the waste materials.

In Ontario, some three million households participate in the province's Blue Box program (there are 3,911,000 households in Ontario). Up to six different categories of paper are collected in Ontario's Blue Box program: ONP, OMG and catalogues, fine or household paper, telephone directories, OCC and OBB. Old newspapers are collected by all municipalities participating in the program. OMG (and catalogues), telephone directories and OCC are collected in most of the major centres. Whereas household fine paper and OBB are collected by a growing number of municipalities (see Table 2 - Paper Available, Collected and Recycled in Ontario in 1992).

Canadian Tire Corp. purchases 8,000 to 10,000 used corrugated containers every month. The boxes are used to ship products from their distribution centre to stores across Canada.

Figure 8



Collection systems differ with the type of equipment and the number of materials collected in the program. Blue Box materials may be collected commingled for later separation at a processing centre, or can be separated at the curb into a compartmentalized truck. In the latter approach, less handling is required at the processing centre to prepare the materials for market.

TABLE 2 — PAPER AVAILABLE, COLLECTED AND RECYCLED IN ONTARIO IN 1992

	ONP	OMG	OTD	FINE PAPER	OCC	OBB	TOTALS	FORMULAE
RESIDENTIAL:								
1) Total Ontario Households (HH)	3,911,341	3,911,341	3,911,341	3,911,341	3,911,341	3,911,341		
2) Number of HH Recycling Paper Type (1992)	3,006,584	1,315,441	1,914,842	48,800	1,858,243	131,964		
3) 1991 Ontario Consumption* (tonnes)	480,000	76,500	17,000	695,000	850,000	256,000	2,374,500	
4) Quinte Residential Generation (kg/hh)	98.5	8.9	2.27	19.72	22.95	34.27		
5) Estimated Prov. Residential Generation (tonnes)	385,267	34,811	8,879	77,132	89,765	134,042	729,895	*1 x *4
6) Available from Current Residential Programs (mt)	296,149	11,707	4,347	962	42,647	4504	360,316	*2 x *4
7) Available if All Recycling HH Collected (mt)	296,149	26,759	6,825	59,290	69,001	103,036	561,059	*4 x (3,006mt)
8) Reported Residential Recovery ^a (tonnes)	207,058	1,924	1,233	1,540	19,884	1,289	265,729	
9) Provincial Recovery Rate ^b	53.7	5.5	13.9	2.0	22.1	.96	36.4	*8/*5 x 100
10) Recovery Rate Within Serviced HH	69.9	16.4	28.4	160.0	46.6	28.6	64.6	*8/*6 x 100
11) Quinte Capture Rate (QCR)	82.4	58.9	76	36.4	63.4	38.8		
12) Calc. Recovery for 3,006 million HH at QCR	244,026	15,761	5,187	21,582	43,747	39,978	370,280	*11/100 x *7
13) Net Increase with QCR (tonnes)	36,968	13,837	3,954	20,042	23,863	38,689	137,352	*12 - *8
14) % Net Increase	17.8	719	320.7	1301.0	120.	3001.0	59.0	*13/*8 x 100

	ONP	OMG	OTD	FINE PAPER	OCC	OBB	TOTALS	FORMULAE
IC&I:								
15) Estimated Generation ^d (tonnes)	94,733	41,689	8121	617,868	760,235	121,958	1,644,605	#3 - #5
16) Recovery (tonnes)	32,942	unknown	4567	250,000	270,656	unknown		
17) Recovery Rate (%)	34.8		56.2	40.5	35.6			#16/#15
TOTAL:								
18) Total Recovery (tonnes)	240,000	unknown	5,800	251,540	290,540	unknown		#16 + #8
19) Total Recovery Rate (%)	50.0		34	36.2	34.2			#18/#3 x 100

* Consumption estimates - do not directly translate to waste generation as storage is not accounted for.

a) per municipal data

b) includes all households, serviced and unserviced

c) those with this type of paper collection

d) based on provincial consumption less residential.

Quinte - model Ontario recycling program

To help municipalities make their programs more efficient, the MOEE and EPIC (Environment and Plastics Institute of Canada) sponsored the development of the municipal recycling collection cost model. The model is designed to help calculate the impact of adding recyclable materials to a curbside collection program. The MOEE and EPIC now plan to work together to develop a model that will similarly help predict processing costs for municipal programs.

Recyclable materials from the IC&I sectors are collected by private companies. While information is available on the quantity of materials collected and sold by municipalities across Ontario, the same information is not available for the private sector because of the greater number of players involved. For this reason, it is difficult to estimate the amount of old corrugated containers, and fine and office paper collected from the IC&I sector.

Figure 9 (Paper and Waste Paper: Consumption, Supply and Demand in Ontario) shows the amount of paper products consumed, the amount of secondary material collected and the demand for secondary paper material in Ontario.

Old Newspapers (ONP) and Old Magazines (OMG)

It is estimated that households in Ontario generate about 98 kg/household or 385,000 tonnes of ONP each year (based on Quinte's Blue Box 2000 data). This translates to 296,000 tonnes potentially available from existing residential recycling programs. It is estimated that 33,000 tonnes of ONP is being recovered from the IC&I sector in the form of returns, press room waste and other recovery programs.

The estimates obtained from municipal collection programs (see - Table 2) indicate that the recovery rate of ONP from those programs is 70 percent. This estimate confirms that there is an opportunity to increase the residential collection rate and the number of households served.

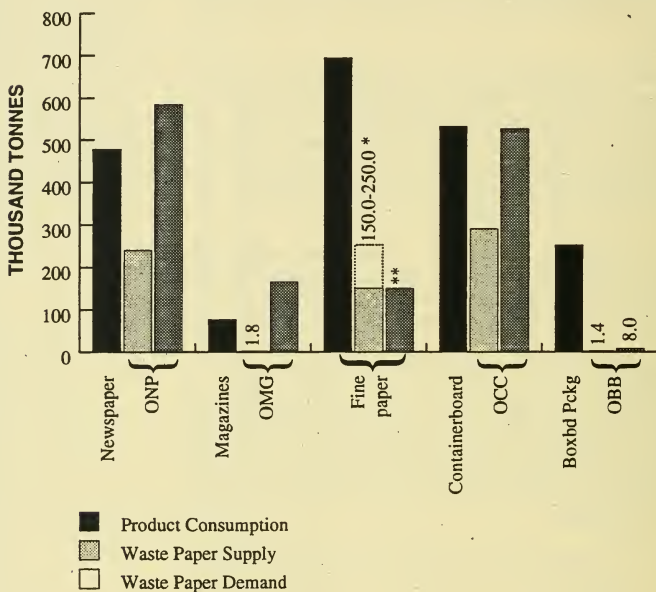
Even greater opportunity can be shown for the IC&I establishments.

The capacity of recycling ONP has almost tripled in Ontario since new de-inking facilities have come on-line. The Ontario Printing Paper Users Group (OPPUG) estimates that 50 per cent of the newspapers consumed in Ontario are being recycled, with additional ONP being imported to meet demand.

The Blue Box is a good way to divert waste from disposal. Reports show adding new materials can reduce the cost per tonne. This however, only translates to a reduced net cost if there is a saving in other areas.

Adding a new material to the Blue Box can mean a significant cost increase unless the material is collected and transported to a mill with other materials.

**FIGURE 9: PAPER AND WASTE PAPER:
CONSUMPTION, SUPPLY & DEMAND IN ONTARIO**



* numerous private haulers render information difficult to obtain

** does not include markets outside of Ontario

References: CPPA, RCO, and estimates

Because of the large amount of newsprint produced for export, the supply of ONP and OMG in Ontario can never meet the demand of the de-inking mills, and it will continue to be necessary to import large quantities. However with improved recovery a greater proportion of the demand could be supplied from Ontario sources.

The demand for magazines has increased because the clay content of this paper facilitates the removal of ink by the flotation process used by recycled newsprint mills. The major source of OMG for mills is unsold issues and ninety per cent of the current supply is imported.

Using Quinte's Blue Box 2000 data, it is estimated that 34,800 tonnes of OMG are available in Ontario. Of the 1.3 million households that collected OMG in 1992, only 1.3 kg/household were recycled compared with Quinte's 5.18 kg. The lower figures may be attributed to commingling of OMG with ONP (with OMG quantities being part of the ONP total) and that programs were not operating for the full year. The results seem to indicate that there is a major opportunity for increasing the number of households collecting OMG and for increased capture.

At three newsprint mills in Ontario, OMGs are accepted commingled with ONP. For this reason, more municipalities are expected to add magazines to their Blue Box programs. More magazines need to be recovered from the waste stream in order to help meet the demand at Ontario de-inking mills. However, even with the collection of all the magazines sold in Ontario, mill demand cannot be satisfied without imports.

Old newspapers are used primarily to make newsprint in addition to boxboard packaging, construction board and materials, insulation, moulded products (egg and fruit trays), animal bedding and other packaging.

Fine Paper

Currently, few Blue Box programs collect household fine paper. Estimates from Quinte data indicate a potential supply of 77,000 tonnes from households or 59,000 tonnes from those currently served by the Blue Box. About 1,500 tonnes of fine paper were collected in 1992. However, the main source of fine paper can be found in the IC&I sectors (see Figure 6).

About 70 per cent of the secondary fine paper used in Ontario mills is imported. This means the demand for secondary fine paper is not being met by existing Ontario recovery programs. The imported fine paper is often high quality non-printed paper from commercial sources. Residential and office paper would require sorting to extract the high grade paper.

Secondary (post-consumer) fine paper can be used to produce fine paper, tissue, boxboard packaging, and construction papers.

Old Corrugated Containers (OCC)

Old corrugated containers have been collected by the IC&I sector for many years. Demand currently exceeds the supply within Ontario. Residential and small IC&I waste generators are largely untapped sources of OCC.

About 25 per cent of the OCC used in Ontario mills is imported. The mill capacity for OCC is expected to grow by a third over the next few years.

Old corrugated containers are used to make new corrugated containers, boxboard, construction products and possibly fine paper in the future. Waxed corrugated containers are now being composted on a commercial scale.

Old Boxboard (OBB)

Quinte data indicates 134,000 tonnes of OBB is available from Ontario households if all could be collected. As much as 120,000 tonnes appear to be available from the IC&I sector and this portion is commonly included in OCC bales sent for recycling (although not a preferred practice).

Demand for OBB is increasing gradually as this new market is developed. The major market for old boxboard is to displace other secondary paper already used to produce new boxboard.

Currently, demand for OBB (8,000 tonnes in 1993) exceeds supply from within Ontario (projected 3,360 tonnes based on current collection). The OMMRI/PPEC Boxboard Task Group monitors supply and demand to provide for an orderly development of markets and to help avoid an oversupply of materials.

Domtar Inc. announced plans in February 1993 to make fine paper from old corrugated containers. The Cornwall mill is expected to consume 120,000 tonnes/yr. of OCC and should be up and running by 1995.

Old Telephone Directories (OTD) and Catalogues

About 17,000 tonnes of telephone books were delivered in Ontario in 1992. Approximately one half of them end up in households and the other half in IC&I establishments.

Over 1,200 tonnes of telephone books were collected in 1992, from 1.9 million households. This represents about 28 percent of what could be collected in those Blue Box programs. The market for this material exists primarily in Quebec. Old telephone books are used to produce tissue and paperboard.

3.4 Other Initiatives

There are many activities by numerous organizations that are resulting in paper diversion from disposal. Although not all organizations or activities are mentioned below, it is important to highlight some of the work being done.

Federal, provincial and municipal governments, industry, consumer and public groups developed a national strategy to reduce, reuse and recycle packaging. The National Packaging Protocol sets out a number of policies and a series of targets to guide its implementation (see Appendix E - National Packaging Protocol).

Under the province's new 3Rs regulations (see Appendix F - Ontario's 3Rs Regulations), municipalities with a population greater than 5,000 must source separate ONP. Municipalities must also collect two materials from a supplementary list that includes six other paper products.

Also, designated IC&I waste generators are required to source separate OCC, fine paper and ONP (see Table 3 - Sectors Required to Source Separate Paper Fibre).

Consumer and Corporate Affairs Canada has updated its "Guiding Principles for Environmental Labelling and Advertising" to increase industry and consumer understanding of the various recycling logos and acceptable claims.

Procurement policies adopted by businesses, institutions and governments (Ontario Green Workplace Program and GIPPER), all encourage recycling. The aim in amending procurement policies is to create and/or increase the demand for

recycled content and recyclable products as well as encourage wise purchasing to promote waste reduction and reuse.

The federal government's Environmental Choice Program allows businesses to promote their recycled content products with the program's endorsement. Strict guidelines for use of the logo have been developed for newsprint, fine paper and miscellaneous products made from recycled paper.

Education and training programs for the operation (Advanced Recyclers' Training Program) and refinement of municipal recycling programs (municipal recycling collection cost model) have been developed with support from both government and industry (e.g. OMMRI, EPIC). General and paper specific 3Rs information has been developed by governments, non-profit organizations and corporations.

The Waste Reduction Advisory Committee and a grouping of the Grocery Product Manufacturers of Canada, the Canadian Council of Grocery Distributors and the Retail Council of Canada, have initiated discussions and separate proposals for ways of dealing with who pays for waste management.

Research, development and demonstration is being undertaken by numerous organizations such as: individual paper mills; national organizations, such as CPPA, the Paper & Paperboard Packaging Environmental Council; PAPRICAN; universities; municipal governments; and private companies (e.g. Bell Canada). Funding for these ventures comes from various sources in industry and government.

Projects may focus on developing and improving technology for processing and manufacturing the secondary materials, testing new markets or demonstrating different collection processes.

Various forums for sharing information are also available such as industry association meetings and newsletters, and conferences such as the Recycling Council of Ontario's 3Rs conference.

GIPPER comprises representatives from waste management and purchasing departments of federal, provincial and municipal governments. Their goal is to develop and promote government purchasing policies and practices that help achieve national waste diversion targets.

OMMRI: Corporations in Support of Recycling is a not-for-profit industry group whose goal is to help the province reach its waste diversion goal. It plans to achieve this through: research & development, capital grants, communications and market development.

Table 3 - Sectors Required to Source Separate Paper Fibre Under the 3Rs Regulations

SECTOR	ONP	FINE PAPER	OCC
Construction Projects			■
Schools	■	■	■
Hospitals	■	■	■
Hotels/Motels	■	■	■
Manufacturers	■	■	■
Offices	■	■	■
Restaurants	■	■	■
Retail Complexes	■	■	■
Retail Stores	■	■	■
Multi-Unit Residential*	■		
Municipalities >5,000 population**	■		

* Also required to source separate other types of material which are collected in the local municipal Blue Box program

** Also required to source separate two materials from a supplementary list of 11 materials (see Appendix F - Ontario's 3Rs Regulations).

4 Barriers and Opportunities

It is evident from the discussion in the previous chapter that although significant diversion appears to be taking place (about 35 percent of available paper from households was diverted in 1992 by recycling alone), there is much yet to be done.

There appears to be significant opportunity in residential recovery of OBB, OMG and fine paper and some opportunity for increased recovery of OCC and ONP. Capture rates need to improve and a broader number of paper materials need to be added to municipal programs in order to maximize paper diversion from the residential waste stream.

The barriers to municipalities expanding their source separation programs are primarily economic or contractual but may also be due to infrastructure limitations.

The low prices for some secondary materials create a disincentive for the private sector in the absence of other incentives and instruments.

Although mills have been recycling for years, the use of post-consumer material is relatively new and has meant that mill technology must deal with new contaminants while maintaining product performance. For some paper products, existing markets are insufficient to accommodate all the secondary material available.

A lack of knowledge also creates barriers that lead to purchasing, manufacturing and disposal decisions counter to the 3Rs.

The issue of equitable distribution of the costs and benefits associated with the system required for properly managing wastes and secondary materials arose in the discussions as being an underlying barrier for municipal 3Rs programs.

These are some of the barriers to the reduction, reuse and recycling of paper identified by the strategy team and form the basis of the actions proposed in this chapter.

Throughout the discussions of barriers to the 3Rs and related

opportunities, it was assumed that some form of the MOEE's proposed 3Rs regulations would become law. The regulations were announced in April 1993 and most of the provisions will begin to apply six to 12 months after they are filed with the Registrar of Regulations.

The discussion that follows covers the actions proposed to overcome the barriers to the 3Rs. Detailed action plans can be found in Appendix C.

4.1 Education, Information and Procurement

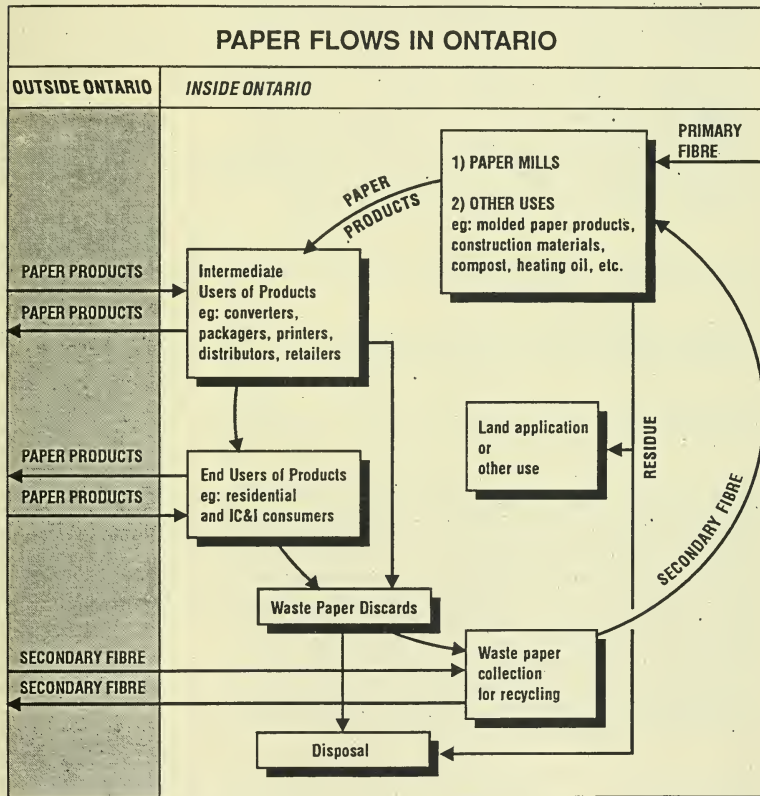
Action Plan #1: Establish a database for waste paper flows in Ontario.

It is estimated that in 1989, paper made up 29 per cent of Ontario's municipal solid waste (MSW). About fifty seven percent of that paper waste is generated by industrial, commercial and institutional sectors and the remaining 43 per cent is generated in residential areas.

To determine where to focus our paper waste diversion activities and to assess the diversion being achieved in the province, a database of waste paper quantities and flows such as amounts generated, reused, recycled and disposed, needs to be developed and maintained (see Figure 10 - Paper Flows in Ontario). Knowledge of national and international movements of paper and waste paper would help harmonize Ontario's waste diversion efforts beyond its borders.

An ad hoc group is being established to review the appropriate sources of data, and determine the ongoing information requirements and optimum format for a database. Additional information requirements will be determined and developed, where reasonable. These information needs will be coordinated with existing databases where possible. Data will be collected and updated on a regular basis.

Figure 10



Action Plan #2: Establish milestones for paper fibre diversion.

To provide a realistic focus to optimize diversion of paper from disposal, milestones for achieving the maximum diversion, together with a sound database would provide industry, governments and interest groups with a means of measuring their collective achievements.

The process of setting industry milestones for collective contribution to the 3Rs would benefit from the participation of all stakeholders. Information from other initiatives that impact milestones for paper products, such as the National Packaging Protocol's targets for packaging waste (ie. boxboard and corrugated containers) will be incorporated into this exercise.

Action Plan #3: Catalogue 3Rs reference material in support of the paper strategy.

In support of the strategy development and implementation, a list of reference materials will be established and updated.

Action Plan #4: Develop reduction, reuse and recycling education for municipalities.

Quality, targeted and repeated communications can get better results. Well planned education on how and where to reduce, reuse and recycle within a community translates into increased diversion. Some municipalities have done an excellent job of informing their residents. However, many municipalities don't have the resources to do so. Since educational material is most effective when it provides information on local situations and services, it has not been developed to any great extent for the whole province. Standard education material could be designed by a central agency such as the Association of Municipal Recycling Co-ordinators which could then input specific local information to produce material tailored to an area's needs.

Action Plan #5: Develop reduction, reuse and recycling education for the IC&I sector.

Large paper waste generators in industrial, commercial and

institutional establishments will be undertaking waste audits and waste reduction work plans as required under Ontario's new 3Rs regulations. In addition, major packaging users will be required to conduct packaging audits and packaging reduction work plans. Both of these initiatives will be facilitated by the existence of educational material, targeted to specific sectors, on reduction, reuse and recycling. This material can also be used by non-regulated establishments. This education material would include case studies, or real life examples of 3Rs initiatives in the workplace.

Action Plan #6: Develop procurement policies in support of paper fibre diversion.

Recycling involves collection, manufacturing and use as represented in the three arrows of the Mobius loop. The recycling loop is not complete until a product made from the recycled material is actually used.

In this area, purchasing staff of private and public sector organizations can play a key role. The purchasing agent, as a customer, can influence the type of products available by requesting products that are: designed to reduce waste; designed for reuse; and/or made recyclable and with recycled content.

Governments and other large purchasers can have a profound effect on the market for recycled products. The provincial and municipal governments as well as numerous private establishments have taken lead roles in implementing innovative 3Rs procurement policies. To assist in the adoption of such policies across all sectors, and to provide guidance in evaluating the recycled content of the products produced and purchased, a guide to developing procurement policies will be established.

Action Plan #7: Development of a 3Rs code of practice for major paper product user industries.

To augment procurement initiatives, paper and paper product users can increase the reduction, reuse and recyclability of their products by developing a 3Rs code of practice or guiding principles for the industry to manage the content of their products. One of the goals

The Ontario Public School Boards' Association has taken a lead role in projects that assist school boards with environmental issues and responsibilities. The *School Board Green Guide: A Resource Guide for Developing and Implementing Environmental Policy*, is a result of this leadership.

for the newspaper, magazine, advertising, grocery product manufacturing and retail industries would be to minimize the use of products that impede recycling.

Action Plan #8: Inventory funding and research organizations to promote research needs for waste paper diversion.

Although much research, development and demonstration has taken place in the past few years, more research is needed to improve the recycled product performance and overcome technical and process problems experienced by mills, paper product users and recyclers. An inventory of the applicable research and funding organizations will be developed and shared with those groups to facilitate the communication of priority R&D needs.

4.2 Reduction and Reuse

Reduction by decreasing or eliminating the generation of waste at the source can result in more efficient use of resources. As consumers voice their concerns about unwanted waste, industries are responding in this regard.

Action Plan #9: Develop a strategy and action plan for addressing the environmental issues associated with print advertising.

Household mixed paper, of which print advertising is a component, represents a visible example of a waste reduction opportunity. In 1992, members of the print advertising industry set up a committee comprising advertisers, advertising agencies, paper producers and converters, printers, distributors, municipalities and recyclers. The committee is developing a strategy and action plan that addresses the reduction, reuse and recycling of print advertising.

Action Plan #10: Expand "Do Not Mail" service.

The Canadian Direct Marketing Association (CDMA) provides a service that lets people stop receiving unsolicited addressed

advertising. Although CDMA's service is effective in reducing unsolicited addressed mail, it does not cover businesses outside of Canada or those not holding CDMA membership. The CDMA will expand their service to cover non-member Canadian direct marketing businesses and establish a link with their U.S. counterpart.

Action Plan #11: Return corrugated shipping containers for reuse or recycling.

While between one-half and two-thirds of Ontario households now have access to residential OCC recycling through their Blue Box program, the capture rate varies.

If the corrugated boxes used to ship goods to the home owner were returned to the point of purchase, or the distribution centre, the collection rate of these items could be increased.

The reuse of these corrugated boxes could also be increased. Design changes may be required to enable the reuse of these containers once returned to the manufacturer. They could also be sent to any of a number of companies that buy and sell used corrugated containers.

Once the government's new waste reduction regulations become law, all large retail centres will be required to prepare waste reduction work plans and separate their recyclable materials. These plans may provide added incentive for taking back these boxes.

Manufacturing, retail and distribution associations will determine if this example of product stewardship is achievable.

4.3 Market and Infrastructure Development

Action Plan #12: Increase municipal source separation of all types of paper.

Once the new waste reduction regulations become law, more households including apartments, will be source separating paper. Processing capacity and technology will need to be developed to accommodate the increased volume from these sources. Thus the challenge is to collect and process more material without

increasing the cost.

A collection cost model was recently developed and distributed for use by municipalities. A processing cost model is also planned for development. The two models will assist recycling program managers in optimizing their program efficiencies.

Another initiative that will improve program efficiency is the trend over the past year of some Ontario mills to accept OMG and catalogues together with ONP.

Newsprint mills need the magazine paper for their de-inking processes and are encouraging the collection of greater quantities of OMG commingled with their ONP. More and more Blue Box programs across the province are able to add this new material without extra processing requirements.

Adding a new material can require a significant investment, such as increased manpower, re-design of trucks, an extra sorting line and storage at the MRF. Commingling of the materials from initial collection through to the end market, as in the case of ONP and magazines, provides a more cost effective way of increasing diversion.

Household fine paper and boxboard need to be added to more programs. The existing contractual barriers in addition to technical and other barriers must be removed.

In municipalities that do not collect OCC, boxboard or fine paper, depot systems for these materials could be established. Partnerships with IC&I recycling programs should be assessed by municipalities to increase efficiency and reduce costs.

Action Plan #13: Increase IC&I source separation.

Although it is unclear how much secondary paper is being recovered from the IC&I waste stream, it is evident that more establishments need to participate in paper diversion programs.

The 3Rs regulations identify those sectors that must source separate waste and carry out waste audits and reduction work plans (see Table 3). The achievements resulting from the regulations will be monitored and options for future changes will be recommended to the MOEE.

Action Plan #14: Support bans from municipal landfills where diversion programs exist.

Landfill bans can be found in thirty-eight areas in the province for OCC. Seven areas have bans on other paper types, mostly fine paper.

For IC&I establishments not required by the waste reduction regulations to source separate, and where diversion programs exist, municipal bans on specific materials, such as OCC, could effectively contribute to the diversion of paper products from the waste stream.

Action Plan #15: Design and deliver market workshops.

Large markets are well established in Ontario but geography can still represent a barrier for specific materials in some areas. Local markets need to be developed which can service small quantities of possibly mixed grades of paper.

Secondary materials can be used to make, not only standard paper but also non-standard paper products, construction boards, moulded paper products, animal bedding and hydroseed mulch. The Ministry of Environment and Energy supported the development of a pilot workshop to promote these market opportunities to local investors and entrepreneurs. Workshops such as these will be delivered in targeted communities across the province.

Action Plan #16: Increase the use of old boxboard in all boxboard packaging.

Action Plan #17: Co-ordinate task groups to further divert OBB and OCC.

Research needs and other changes can be achieved when industry works together toward a common goal.

PPEC and OMMRI along with brand owners, packagers and other stakeholders, established the OMMRI/PPEC Boxboard Task Group that is leading the way to recycle boxboard captured from the municipal waste stream; increasing the use of OBB in all boxboard packaging; and developing markets for these products. A similar group is being set up for old corrugated containers, kraft bags and sacks.

Action Plan #18: Develop markets for lower grade secondary paper fibre: ethanol and heating oil conversion; building materials; home insulation; and, animal feed.

Although efforts have been made to increase the recycling of paper products back into new paper products, some low grade (short) fibre products will remain.

There are many existing markets that use other grades of paper: roofing material, gypsum liner, construction paper, insulation and moulded products such as flower pots. The use of old boxboard in place of these other grades is being investigated. Other uses being explored include: converting secondary paper products to alternative fuels and compost, and use as animal bedding and feed.

Two collaborative projects by the federal and provincial governments, PPEC and the private sector are underway to determine the feasibility of converting portions of this paper resource into fuel for cars and heating oil.

ENSYN Technologies Inc.'s rapid thermal process can convert old boxboard, waxed corrugated and non-recyclable kraft bags to a bio-oil substrate for extraction of specialty chemicals or as a fuel to replace high sulphur coal or petroleum fuel oil. It has been tested in small commercial plant sizes but more research and development is required to expand to a commercial scale.

Stake Technology's steam explosion/enzymatic hydrolysis process also has been used at a laboratory scale to convert similar packaging waste to sugars for fermentation to ethanol.

Ethanol is a clean burning fuel that could replace up to 10 percent of non-renewable fossil fuels. Results have shown that this process using packaging waste is technically feasible. However, more research and development is required to prove the technical and economic feasibility of a commercial plant.

PPEC is also considering undertaking research aimed at using old boxboard to develop a composite building product and home insulation.

Initial research on the use of old boxboard for animal feed has produced positive results. Further work however, is required to determine any environmental or health effects.

4.4 Paper Mill Residue Management

Action Plan #19: Identify and set up environmentally-sound and cost effective options for managing paper mill residue.

When secondary fibre is used to make paper products, there is a loss of fibre. This loss depends on the type of furnish (OCC, ONP, OBB, office paper) and the recycling process. The loss can range up to 20 per cent (dry basis).

The lower the grade of paper (shorter fibres) used in the process, the more paper sludge or residue is generated. The residue is made up of ink, clay and fines (fibres too short to be recycled).

In Ontario, paper mill residue is applied on agricultural land, used in commercial compost facilities as a bulking agent, disposed of in landfills or for co-generation, and a small amount is made into cat litter.

Land spreading and disposal costs can be high. Environmentally-sound and more cost effective management options need to be established.

Some options being investigated by manufacturers of recycled paper include use as landfill cover, land application for the rehabilitation of pit and quarry sites and as a fuel supplement in cement production. Further investigation is required on the feasibility of any potential option for the use of this material.

4.5 Outstanding Issues

The strategy team has focused on the paper and paper products that make up over 80 per cent of the paper waste stream. The remainder includes paper products that are not easily recovered or readily recyclable such as sanitary papers, waxed and wallpaper and composite products.

While, it is difficult to estimate the impact of the various initiatives, diversion rates will be monitored so that progress in achieving the provincial waste diversion target -- to reduce the amount of waste going to disposal by at least 50 per cent by the year 2000 -- is assessed.

Other Issues

A number of issues and ideas raised were acknowledged and discussed but were not carried forward. In some cases, there was disagreement on the problem and for others, over the solution. Some of the issues are highlighted below.

Jobs: A Union Perspective

It is recognized that forestry and transportation jobs are being reduced with the increased use of secondary fibre, and that paper mill jobs are being lost as further reduction and reuse occurs. These workers will bear the burden of the move toward a "conservator society" as it occurs not only in Ontario but in the US, where the majority of our paper is exported.

Of the 3Rs, recycling is less likely to cause job loss in the pulp and paper industry, than will reduction and reuse of paper products. Therefore a primary emphasis on recycling with a more gradual shift to reduction and reuse, will have a less damaging effect. To assist laid off workers during the transition period, it is recommended that they have access to comprehensive programs for retraining, relocation and financial support.

The Communications, Energy and Paper Workers Union has initiated a research project to examine the impact of recycling on workers in newsprint mills in Ontario.

Product Stewardship

It was agreed that product stewardship is important for the continued success of the 3Rs system in Ontario and that a level playing field was required to ensure equitable distribution of the associated costs and benefits. In both the Waste Reduction Advisory Committee's "Resource Stewardship" model and the Canadian Packaging Stewardship Initiative (based on the GPMC model) backdrop regulations are called for.

Backdrop regulations are defined by WRAC as those "... which serve the dual purpose of bringing firms into the voluntary

negotiation process and of levelling the playing field for those firms that do not take the voluntary route". The Ministry of Environment and Energy recognizes that such legislation may be required to ensure acceptable levels of conformance.

Mandatory Recycled Content

The idea of making recycling and recycled content mandatory was suggested and discussed. In an effort to balance economics with environment, mandatory recycling for all municipalities and IC&I establishments seemed an extreme measure to some when assessed in conjunction with the actual amount of additional paper that would be diverted.

The pulp and paper industry considered mandatory recycled content as economically damaging given the added cost of the infrastructure that would be required, on top of other environmental requirements that the industry is currently facing.

While procurement policies will help promote the use of recycled content fine paper, the added cost of such paper may be a barrier. A number of factors may impact the price for recycled fine paper: the yield loss (15 - 25%) during processing; transportation costs; lower productivity (use smaller machines) due to lower demand; and more downtime as a result of the inconsistent nature of recycled fibre.

Provincial Ban on All Paper to Landfill

A ban of all paper from landfill seemed impractical to some given that numerous barriers remain, e.g. cost and lack of province-wide infrastructure, that must be removed before there is a collection, processing and market system in place for all paper.

5 Implementing the Proposed Actions

Future action among stakeholders must be developed to provide a return on the investment of resources into the 3Rs of waste management. In this regard, a co-operative approach is essential in maximizing the diversion of this resource from disposal.

The strategy team, which is a multi-stakeholder group, has, through the development of proposed action plans, provided practical advice to agencies that can bring about change. A select group of lead agencies can act on this advice by making a commitment to implementing these action plans (see Table 4 - Action Plan Summary). Many other organizations are also listed as providing support to these.

The action plans address a wide range of 3Rs activities. The major areas within which specific action plans are proposed include: education and information sharing, reduction and reuse, market and infrastructure development for recyclables, and residue management.

Although the duration of the action plans has been estimated (see Appendix D - Action Plan Schedule), further refinements of the plans by the lead agencies may change these times.

The overall success of the 3Rs strategy proposed by the strategy team depends on the receipt of "expressions of commitment" from the lead agencies identified for each action plan.

Those agencies identified to accept the lead role are urged to consider the strategy team's request. The "expressions of commitment" include the acceptance of a leadership role, the commitment to review and refine the proposed action plans and to begin to implement the plans.

In support of the work done to date, the MOEE's Waste Reduction Office would also like to co-ordinate a progress letter to each strategy team member by the end of 1993. The progress letter would outline any changes or refinements to the proposed action plans (i.e. key steps, delivery timetable, resource needs), an indication of any additional support required to complete

the plans and the status of the implementation. This information should be provided by each lead agency by early December.

To keep the momentum and co-operative spirit of the group going, a meeting is proposed for April 1994, to hear presentations on achievements resulting from the implementation of the plans.

Proceedings of the meeting will be documented and suggestions for further improvements will be considered.

Table 4 - Action Plan Summary

ACTION PLAN NO.	ACTION PLAN TITLE	PROPOSED LEAD AGENCY	PROPOSED SUPPORT AGENCIES
1.	Establish data base for waste paper flows	WRO	Environment Canada, OMMRI, AMRC, RCO, CPIA, OFIA, PPEC, CPPA, OPPUG, CMPA
2.	Establish milestones for paper fibre waste diversion	Environment Canada	Industry Associations, CCME, Provincial Agencies
3.	Catalogue 3Rs reference material in support of the paper strategy	WRO	RCO, Federal Gov't, Industry Associations
4.	Develop reduction, reuse and recycling education for municipalities	AMRC	RCO, MOEE, OMMRI, Industry
5.	Develop reduction, reuse and recycling education for the IC&I sector	OPPUG, CPIA, CMPA, PPEC, School, Hospital & Business Association	WRO, Environment Canada
6.	Develop procurement policies in support of paper fibre diversion	MBS	Environment Canada, WRO, School, Hospital & Business Associations
7.	Development of a 3Rs "Code of Practice" for major paper product user industries	CMPA, CPIA, OPPUG, PPEC, RCC, CDMA	OWMA, WRO, CPPA
8.	Inventory funding sources and research organizations to promote research needs for waste paper diversion.	WRO	CPPA, NGO's, PPEC (PAPRICAN), AMRC, Federal & Provincial Gov'ts
9.	Develop a strategy and action plan for addressing the environmental issues associated with print advertising	Print Advertising Committee	OMMRI, AMRC, OWMA, CPPA, Members of PAC Associations

ACTION PLAN NO.	ACTION PLAN TITLE	PROPOSED LEAD AGENCY	PROPOSED SUPPORT AGENCIES
10.	Expand "Do Not Mail" service	CDMA	American DMA
11.	Return of corrugated shipping container for reuse and/or recycling	Retail Council, Grocery Product Distributors	National Packaging Task Force, WRO
12.	Increase Municipal Source Separation	AMRC	WRO, PPEC, OMMRI, Mills
13.	Increase IC&I Source Separation	OWMA	WRO, AMO, AMRC, PPEC, CPPA
14.	Support bans from municipal landfills where diversion programs exist	AMRC	AMO, OWMA, WRO, RCO, PPEC
15.	Design and deliver market development workshops	WRO, MEDT	AMRC, Consultant
16.	Coordinate task groups to further divert OBB and OCC from waste stream	PPEC	OMMRI, GPMC, AMRC, WRO, OWMA
17.	Maximize usage of old boxboard in all boxboard packaging	PPEC	GPMC, CCGD, OMMRI, RCC, AMRC, HWC, Brandowners, Industry Associations
18.	Develop markets for low grade secondary paper fibre: ethanol and heating oil conversion; home insulation; building materials	PPEC	EMRC, MOEE, Building Associations, Agriculture Canada, HWC
19.	Identify and establish options for managing paper mill residue	Affected mills	Environment Canada, MOEE, PPEC,

Please refer to the Action Plans in Appendix of the Paper Fibre Strategy for more detail on work required.

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Glossary of Terms

Blue Box

A blue plastic box used by residents of communities to collect and store recyclable materials. The box is brought to the road side and the materials are collected by a municipality.

Blue Box Materials

The usual materials being collected by a Blue Box program. The types of recyclables collected by municipalities vary, but may include glass jars and bottles, aluminum and other cans, old newspapers, old boxboard, old corrugated containers, polyethylene terephthalate (PET) bottles, rigid plastic bottles, plastic film and polystyrene.

Boxboard

Light-weight packaging such as cereal and detergent cartons, toy and shoe boxes.

Closed-Loop Recycling

Converting used material into material the same as, or similar to, the original (ie. old newspapers into new newspaper). Also known as primary recycling.

Collection

The act of picking up materials at home, businesses or industrial sites and hauling them to a reuse or recycling facility, transfer station, energy recovery plant or landfill.

Commingled Materials

A mixture of two or more different types of materials. Technology now exists to recycle selected streams of co-mingled paper into useful products.

Containerboard

A widely used shipping container comprised of corrugating medium (the wavy inside ply) and linerboard. Used containerboard is called old corrugated containers (OCC).

Contaminants

Foreign materials (such as dirt, glue, glass, tear tapes, adhesives, food scraps and plastic) that make it more difficult to recycle paper and limit the use of the secondary material.

De-inking

A process that removes inks, clay coatings, binders and other contaminants when preparing some waste paper grades for recycling.

Disposal Facility

A facility or part of a facility where waste is placed and where it will remain after closure. Landfills and lakefills are examples of disposal facilities.

Diversion

Using the 3Rs of waste management as part of a strategy to keep materials from going to disposal.

Environment

The *Environmental Assessment Act* defines the environment as: (i) air, land or water; (ii) plant and animal life, including man; (iii) the social, economic and cultural conditions that influence the life of man or a community; (iv) a building, structure, machine or other device or thing made by man; (v) any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from the activities of man; or (vi) any part or combination of the

foregoing and the inter-relationships between any two or more of them in Ontario.

Fibre

The smallest units of organic growth used in producing pulp.

Fine Papers

High quality printing/writing and cover papers having excellent surface characteristics for pen and ink writing.

Full Cost Analysis

An analysis that not only considers the true cost but all the costs (environmental, social and financial) of resource development and use. This analysis could include the impacts of energy, chemical and water use and the removal of all direct and indirect subsidies.

IC&I Waste

Industrial, commercial and institutional solid waste generated by businesses and industries (including shopping centres, restaurants and offices) and institutions (such as schools, hospitals and government offices). IC&I wastes make up about 60 per cent of Ontario's total municipal solid waste.

Junk Mail

Common term that covers a broad range of print advertising. Some examples include: coupons, flyers, free samples and brochures.

Kraft Paper

High strength paper made from sulphate pulp, usually with a naturally brown colour from unbleached pulp.

Landfill

A facility for the burial or disposal of solid non-hazardous waste under controlled conditions.

Low Grade Paper

Paper which contains short cellulose fibres (ie. newsprint and boxboard).

Material Recovery Facility (MRF)

A recycling site that receives mixed recyclables or source separated materials such as old newspapers, old magazines fine paper, old corrugated containers, plastic and cans. The facility can remove contaminants, sort, grade, bale, grind, package and transfer the material to a recycler or end user.

Mechanical Pulp

Slurry produced by mechanically abrading fibres from pulpwood logs or chips through a revolving grindstone or serrated metal plates. It is used extensively to make newsprint and paper for publications.

Municipal Solid Waste (MSW)

Materials discarded by individuals in the course of their daily activities at home and by commercial businesses, industries and institutions as a result of normal operations. MSW comes from two sectors: the residential and IC&I sectors.

Newsprint

Grade of paper, combining high percentages of groundwood pulp, made especially for use in the printing of newspapers.

Packaging

A material or item used to protect, contain or transport a product. It can also be attached to a product or its container for the purpose of marketing the product or providing information about the product.

Post-commercial Waste

Waste generated after the product leaves the manufacturer, but before the final end use of the product, ie. trimmings.

Post-consumer or Post-use Waste

Material generated by households, industry, businesses or institutions that have served their intended purpose and can no longer be used.

Primary Fibre

Virgin fibre or that generated as the waste of another process. Examples of wood waste are sawdust, wood chips and shavings, also referred to as forest residue.

Product Stewardship

An approach to waste management that recognizes the responsibility of a product manufacturer to control/monitor the manufacture, shipment, storage, use and final disposal of any product or package used.

Pulp

Fibrous material produced by mechanically or chemically separating the fibres in wood or plant materials. Paper and paperboard sheets are formed with these components.

Recyclable

As related to labelling, Consumer and Corporate Affairs Canada deems a product or package recyclable when at least one-third of the population in the market where the product is sold has access to collection or drop-off facilities for recycling that material.

Recycled Content

Consumer and Corporate Affairs Canada requires manufacturers, who claim their products or packaging contain recycled materials, to show what percentage (by weight) of recycled material their product

contains on average. Unless otherwise stated, it is assumed the recycled part is made up of post-use waste.

Recycling

Physical, chemical or biological processes used to transform waste material into a new product or raw material needed to make a new product. To be successful, a recycling program requires an infrastructure for separating, collecting, transporting and re-processing the feedstock, as well as a stable market for the secondary material produced.

Reduction

Changes in consumer practices, product or package design or industrial production that eliminate the need for a product or decrease the quantity of waste produced, e.g. borrowing books from the library or buying products with minimum packaging.

Residential Waste

The waste produced by households including, detached dwellings, row housing, condominiums and apartments. In Ontario, waste from the residential sector makes up about 40 per cent of the municipal solid waste stream.

Resource Recovery

Any process that extracts value from collected solid wastes -- for example, through recycling or burning wastes as fuel to generate energy.

Reuse

To use a product or package again, in its original form, for the same or a different purpose. Reuse involves less cleaning or re-processing than recycling.

Secondary Fibre

Any type of waste paper or paperboard fibre used to make new products.

Solid Waste Management

The process of collecting, sorting, processing, recycling, reclaiming and disposing of waste. The waste management hierarchy first considers waste reduction and reuse measures, followed by recycling and resource recovery and finally disposal.

Source Separation

The segregation of recyclable materials by consumers at the curbside or at a recycling drop-off centre. The Blue Box program, for example, is a source separation program.

Three Rs (3Rs)

The 3Rs of waste management: reduce, reuse and recycle.

True Cost Accounting

An accounting practice that involves recording the financial costs of a good or service. For example, waste management costs would include: collection, processing and disposal costs and revenues (including landfill siting, operating and closing expenses) as well as planning, administration, engineering and other related overhead costs. Subsidies should not be included in a true cost calculation.

Unsolicited Print Advertising

Examples of unaddressed advertising are flyers, coupons and brochures. Addressed advertising are usually sales offers, requests for donations and catalogues for a specific person.

Virgin Materials

Any raw material intended for industrial processing which has not been previously used.

Waste

The *Environmental Protection Act* defines waste as: ashes, garbage, refuse, domestic waste, industrial waste, municipal refuse and other such wastes.

Waste Reduction Work Plan

A waste reduction work plan is an organized plan to divert waste from disposal. The plan includes a description of activities, timelines, responsible parties and expected results.

Appendices

Appendix A: Strategy Team Terms of Reference

The Ministry of the Environment's drive towards waste diversion through the 3Rs -- reduction, reuse, recycling, is part of a broader goal to move Ontario from a consumer to a conserver society.

In March 1991, the minister set up the Waste Reduction Office to focus attention and effort on waste diversion and to help ensure the province meets its waste diversion target of 25 per cent by 1992, and at least 50 per cent by the year 2000.

The government believes all sectors of society must be involved to achieve these goals. For this reason, the Waste Reduction Office set up material strategy teams. Through these teams, those who will effect and be affected by the shift to a conserver society will have an opportunity to contribute to Ontario's short and long term waste management policies and practices.

Teams were created to address the issues concerning the following materials:

- municipal 3Rs infrastructure;
- scrap tires (Ontario Scrap Tire Task Force);
- plastics;
- wet waste;
- construction and demolition materials; and
- sewage sludge (Sludge and Waste Utilization Committee).

The formation of the Paper Fibre Strategy Team recognizes that the paper portion, approximately 29%, of the municipal solid waste stream (including old newspapers, fine paper, boxboard, and old corrugated containers) is significant. If the province is to meet its waste diversion target, this portion of the waste stream must be addressed.

The primary goal of the strategy team is to develop an environmentally sound strategy to divert additional waste paper materials from disposal and to promote the development of strong and stable markets for secondary paper fibre. The team will prepare a work plan and set deadlines for developing the strategy and achieving the goal.

The team will deal with paper products and packaging waste including: fine paper, old newspapers, boxboard, old magazines and old corrugated containers, from residential and IC&I sources.

The role of the team is to:

- provide a forum to identify and discuss issues, concerns and solutions for environmentally and economically sustainable management of paper fibre wastes;
- create a spirit of co-operation among stakeholders, to further 3Rs solutions;
- create a forum for effective communication among stakeholders; and
- develop a strategy for the stakeholder groups, to increase the diversion of paper materials from disposal and to develop strong secondary paper markets.

The strategy team will also address measures for waste reduction, reuse and recycling; with reduction as the priority.

Reduction is defined as those activities which decrease or eliminate the generation of waste.

Reuse is defined as using an item again in its same form, for the same or different purpose.

Recycling is defined as the separation or extraction of material from the waste stream to provide feedstock for the manufacture of new products. Some energy recovery activities may also be considered as recycling.

The team will address short and long term objectives. It will also be kept informed about existing activities and issues, such as those

concerning the Greater Toronto Area or the ministry's waste reduction action plan.

Role and Responsibility of Team Participants

Waste Reduction Office staff will participate as members of the strategy team and will facilitate, co-ordinate and support the team and any sub-groups.

Participants from other agencies and stakeholder groups are asked to regularly participate in meetings, provide comments on issues, present possible activities and solutions, and carry out tasks to assist the strategy team.

Members will also be asked to keep their stakeholder groups informed about the results of the strategy team meetings and the action items to be carried out. Members are also required to identify contacts to help carry out the action items.

How the Team Functions

One main group and several task groups will be developed to deal with specific issues or waste paper categories.

The main group is a multi-stakeholder group with representatives from the Waste Reduction Office, non-governmental organizations (environmental groups, consumer associations, labour groups), industry, municipalities and others.

The main group will meet every eight to ten weeks. The task groups will meet as frequently as the members feel is necessary between the main group meetings. The groups will also appoint a chair.

The following task groups were proposed: fine paper, ONP, boxboard and OCC. The task groups will be created as needed and specific terms of reference will be developed for each one.

A common process will be developed to be used by the task groups to assist in the discussion of issues and development of solutions.

An outline for a strategy document will also be prepared when necessary.

Appendix B: Membership List

Dennis Onn	Chairman, Ministry of Environment and Energy - Waste Reduction Office
Beverley Alder	Material Specialist, Ministry of Environment and Energy - Waste Reduction Office
Ron Allan	Ontario Forest Industries Association
Gerry Andrews	Environment Canada
Mark Avon	Forestry Canada
Jody Barclay	Energy, Mines and Resources Canada
Brooke Bell	Ontario Environment Network: Waste Caucus (It's Not Garbage Coalition)
Ben Bennett	Association of Municipal Recycling Co-ordinators
Riet Buck	Ministry of Economic Development and Trade
Bob Christensen	Environment Canada
Wendy Cook	Waste Reduction Advisory Committee
Greg Crevier	Canada Post Corporation
R. Dale DesIslets	Canadian Magazine Publishers Association
Roy W. Emery	Emery International Developments Ltd.
Louise Farr	Ontario Public School Boards' Association
Barbara Francis	Building Owners and Managers Association
Craig Gammie	Grocery Products Manufacturers Canada
Richard Glandon	Forestry Canada
Peter J. Graham	Industry, Science and Technology Canada
David Hay	Environment Canada
Chris Hill	Ministry of Economic Development and Trade
Joe Hruska	OMMRI: Corporations in Support of Recycling
Gulbaz Khan	Government Incorporating Procurement Policies to Eliminate Refuse (GIPPER)
Albert Lacroix	Canadian Printing Industries Association
Carl Larusso	Ontario Waste Management Association
Peter Levitt	Industry Science and Technology Canada
Roger Mattiuz	Domtar Specialty Fine Paper
Scott McClellan	Canadian Direct Marketing Association
Cameron McEwan	Association of Municipalities of Ontario
Al Metauro	Ontario Waste Management Association
Barry Mooney	Canadian Standards Association
George Moore	Canadian Direct Marketing Association
John Mullinder	Paper & Paperboard Packaging Environment Council
Atul Nanda	Association of Municipal Recycling Co-ordinators
Bob Nelson	Atlantic Packaging Products Ltd.
Keith Newman	Communications, Energy and Paperworkers Union

Stan Parker	Canadian Association of Recycling Industries
Roman Pociurko	Ministry of Environment and Energy
Joy Raynor	Association of Municipal Recycling Co-ordinators
David Reid	Noranda Forest Recycled Papers
Stewart Shouldice	Ontario Environment Network - Waste Caucus: Grassroots Woodstock
Dave Sparling	Management Board Secretariat, Green Workplace Program
Gerry Stevens	MacMillan Bloedel
Walt Suboch	MISA Office, Ministry of Environment and Energy
Bob Smart	Communications, Energy and Paperworkers Union
Linda Varangu	Association of Municipal Recycling Co-ordinators
Julie White	Communications, Energy and Paperworkers Union

Interested Parties

James Armitage	Ontario Printing Paper Users Group
Chris Ballard	Consumer's Association of Canada
Drew Blackwell	Ontario Round Table on the Environment and Economy
Keith Collins	Green Industry Strategy Office
Bob Farnley	Management Board Secretariat
John Hanson	Recycling Council of Ontario
Sandy Imada	Abitibi Price Research
Martin Kaiser	Ontario Forest Industries Association
Bill Kissick	Ministry of Natural Resources - Forest Industry Action Group
Tom Kleinbeerninck	Ontario Environment Network - Waste Caucus
Duncan Macdonald	Ontario Federation of Labour
Brian McClay	Canadian Pulp and Paper Association
Kathryn Rowan	Grocery Products Manufacturers Canada
Harry Stemp	Ontario Community Newspaper Association
Ross Williams	QUNO Corporation

Groups Participating on the Paper Fibre Strategy Team

Manufacturers

Ontario Forest Industries Association
 Atlantic Packaging Products
 MacMillan Bloedel
 Domtar Specialty Fine Papers
 Noranda Recycled Papers
 Emery International
 Paper & Paperboard Packaging Environmental Council

Paper Product Users

Canadian Magazine Publishers Association
Canadian Printing Industries Association
Grocery Products Manufacturers Canada
OMMRI: Corporations In Support of Recycling

Generators

Canadian Direct Marketing Association
Ontario Public School Boards' Association
Canada Post Corporation
Building Owners and Managers Association

Recyclers

Canadian Association of Recycling Industries
Ontario Waste Management Association

Interest Groups

Ontario Environment Network - Waste Caucus

Labour

Communications, Energy and Paperworkers Union

Municipal, Provincial and Federal Government Agencies

Association of Municipal Recycling Co-ordinators
Association of Municipalities of Ontario
Governments Incorporating Procurement Policies to Eliminate Refuse
Ministry of Economic Development and Trade
Ministry of Environment and Energy - MISA Office, Energy Programs and Technology and Waste Reduction Office
Management Board Secretariat - Green Workplace Program
Environment Canada
Forestry Canada
Energy, Mines and Resources Canada
Industry, Science and Technology Canada

Appendix C: Action Plan Tables

Education, Information and Procurement

1. Establish Database for Waste Paper Flows
2. Establish Milestones for Paper Fibre Waste Diversion
3. Catalogue 3Rs Reference Material in Support of the Paper Strategy
4. Develop Reduction, Reuse and Recycling Education for Municipalities
5. Develop Reduction, Reuse and Recycling Education for the IC&I Sector
6. Develop Procurement Policies in Support of Paper Fibre Diversion
7. Develop and Adopt 3Rs Codes of Practice
8. Inventory Funding Sources and Research Organizations to Promote Research Needs for Waste Paper Diversion

Reduction and Reuse

9. Develop a Strategy and Action Plan for Addressing the Environmental Issues Associated with Print Advertising
10. Expand "Do Not Mail" Service
11. Return of Corrugated Shipping Containers for Reuse and/or Recycling

Market and Infrastructure Development

12. Increase Municipal Source Separation
13. Increase IC&I Source Separation
14. Support Bans from Municipal Landfills where Diversion Programs Exist
15. Design and Deliver Market Development Workshops
16. Coordinate Task Groups to further Divert OBB and OCC from the Waste Stream
17. Maximize Usage of OBB in All Boxboard Packaging
18. Develop Markets for Low Grade Secondary Paper Fibre

Paper Mill Residue Management

19. Identify and Establish Options for Managing Paper Mill Residue

ACTION PLAN No. 1:**ESTABLISH DATABASE FOR WASTE PAPER FLOWS.****BRIEF DESCRIPTION:**

Develop a database on waste paper flows (generation, diversion, disposal) which can be used to track the impact of the Strategy's 3Rs activities on waste paper diversion in Ontario.

ESTIMATED DURATION

FROM START UP: 2 Months

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	An ad-hoc group will be established to develop database.	WRO	Environment Canada, OMMRI, AMRC, RCO, CPIO, OFIA, PPEC, CPPA, OPPUG, CMPA
2.	The ad-hoc group will: develop the database through a consensus process (i.e. set priorities re data needs; establish criteria for developing "best estimates"; identify existing data sources and review data; resolve data conflicts; finalize flow charts for each waste paper category).	WRO	"
3.	Update data annually and as needs arise.	WRO	"

ACTION PLAN No. 2:

ESTABLISH MILESTONES FOR PAPER FIBRE WASTE DIVERSION.

BRIEF DESCRIPTION:

Develop realistic milestones for paper fibre diversion, to guide industry's progress towards the 50% waste diversion target.

**ESTIMATED DURATION
FROM START UP:**

6 Months

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	An ad-hoc group made up of industry associations will be established to develop milestones.	Environment Canada	Industry Associations, CCME, Provincial Agencies
2.	Ad-hoc group will develop realistic milestones to guide industry towards the 50% waste diversion goal.	Environment Canada	CCME
3.	Milestones will be adopted by industry sectors.	Industry Associations	

ACTION PLAN No. 3:**CATALOGUE 3Rs REFERENCE MATERIAL IN SUPPORT OF THE PAPER STRATEGY.****BRIEF DESCRIPTION:**

A central collection of reference material is needed to assist the PFST in the development and implementation of the action plans.

**ESTIMATED DURATION
FROM START UP:**

4 Months

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Collect information relevant to the paper fibre strategy development and implementation.	WRO	RCO, Federal Gov't, Industry Associations
2.	Develop a glossary of terms.	WRO	"
3.	Compile a list of References relevant to paper reduction, reuse and recycling.	WRO	"
4.	Develop list of newsletters/publications related to paper and paper product users as potential communication vehicles.	Industry Associations	WRO
5.	Review and revise, if needed, the paper section of the markets directory.	RCO	WRO

ACTION PLAN No. 4:

DEVELOP REDUCTION, REUSE AND RECYCLING EDUCATION FOR MUNICIPALITIES.

BRIEF DESCRIPTION:

To maximize the diversion of paper and paper products from landfill, residents need to be informed of reduction, reuse and recycling policies, practices and services available in their community. Standard education material that can be easily designed to meet local needs should be developed. The material can then be tailored to meet specific municipal needs providing comprehensive information for residents at minimal cost to municipalities.

8 Months

ESTIMATED DURATION
FROM START UP:

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Identify the reduction, reuse and recycling message.	AMRC	RCO, WRO/MOEE, OMMRI, Industry
2.	Compile good examples of reduction, reuse and recycling education.	AMRC	RCO, MOEE
3.	Determine the best format and content that will meet municipal needs across Ontario.	AMRC	
4.	Design material, coordinate with other initiatives and develop a communications plan.	AMRC	MOEE
5.	Make service available to municipalities.	AMRC	MOEE

ACTION PLAN No. 5:**DEVELOP REDUCTION, REUSE AND RECYCLING EDUCATION FOR THE IC&I SECTOR.****BRIEF DESCRIPTION:**

To maximize the diversion of paper and paper products from landfill, reduction, reuse and recycling policies and practices should be advanced to major paper waste generators and users for their consideration. These will be useful as a guide for all IC&I waste generators in the development of waste audits and waste reduction workplans.

**ESTIMATED DURATION
FROM START UP:**

8 Months

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Identify the target audience (schools, hospitals, governments, retailers, wholesalers, manufacturers for example) and the 3Rs message.	OPPUG, CPJA, CMPA, PPEC, School, Hospital & Business Associations	WRO, Environment Canada
2.	Identify the 3Rs education already taking place and by who; identify the gaps.	"	"
3.	Develop education materials such as brochures and articles for association newsletters.	"	"
4.	Develop communications plan to effectively disseminate material to the complete range of targeted audiences.	"	"
5.	Implement.	"	"

ACTION PLAN No. 6:

DEVELOP PROCUREMENT POLICIES IN SUPPORT OF PAPER FIBRE DIVERSION.

BRIEF DESCRIPTION:

The provincial and municipal governments as well as numerous private sector establishments have taken lead roles in implementing innovative 3Rs procurement policies for paper products and packaging. A guide to developing and implementing procurement policies for paper products and packaging will be produced to 1) facilitate the adoption of such policies across all sectors, 2) provide guidance to those IC&I waste generators conducting waste audits, to evaluate the recycled content of the products they produce and purchase, and 3) to optimize market demand for secondary paper of all grades.

ESTIMATED DURATION
FROM START UP:

9 Months

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Review existing paper procurement policies, such as those by GIPPER, MBS and others.	Management Board Secretariat	Environment Canada, WRO
2.	Identify and address key issues, such as the barriers to use of recycled content.	"	Environment Canada, WRO
3.	Identify the major paper and paper product users as the target audience including those required to undertake audits and waste reduction workplans.	"	Environment Canada, WRO
4.	Develop an informative, concise guide to developing procurement policies providing the rationale with case studies for schools, corporations, governments, etc; distribute for input; finalize incorporating comments.	"	Environment Canada, WRO, School & Hospitals Assoc., Business Establishments
5.	Distribute guide to target sectors and make it available to the general public.	"	WRO
6.	Investigate the need for making procurement policies mandatory.	WRO	

ACTION PLAN No. 7:**DEVELOPMENT OF A 3Rs "CODE OF PRACTICE" FOR MAJOR PAPER PRODUCT USER INDUSTRIES.****BRIEF DESCRIPTION:**

The need for and content of a code of practice or guiding principles for a) the newspaper and magazine industries b) advertising industries c) brandowners and d) retailers must be determined. Guiding principles or a code of practice would describe how to best manage their product content to maximize recyclability by minimizing the use of products that inhibit recycling.

**ESTIMATED DURATION
FROM START UP:**

6 Months

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Solicit input from recycling mills and waste sorters/handlers on materials that slow or restrict efficient processing of waste.	OMMRI, PPEC, CPIA, CMPA, RCC, CDMA	OWMA, CPPA
2.	Establish related industries group to discuss what a code of practice may include.	CMPA, CPIA, OPPUG, PPEC, RCC, CDMA	
3.	Determine from steps 1 & 2 whether a code of practice is appropriate; if yes, then	CMPA, CPIA, OPPUG, PPEC, RCC, CDMA	
4.	Draft a document and distribute to all parties and associations for review and comment.	CMPA, CPIA, OPPUG, PPEC, RCC, CDMA	
5.	Establish a communications plan to convey resulting code of practice to stakeholders, associations, the public and municipalities.	CMPA, CPIA, OPPUG, PPEC, RCC, CDMA	WRO
6.	Prepare final document release and distribute.	CMPA, CPIA, CDMA, OPPUG, PPEC, RCC	WRO
7.	Establish on-going review network to update guidelines/code. This group should meet twice yearly.	CMPA, CPIA, OPPUG, PPEC, RCC, CDMA	WRO

ACTION PLAN No. 8:**INVENTORY FUNDING AND RESEARCH ORGANIZATIONS TO PROMOTE RESEARCH NEEDS FOR WASTE PAPER DIVERSION.****BRIEF DESCRIPTION:**

Promote research development into technologies and processes which maximize 3Rs diversion of paper products by making funding organizations aware of priority research needs.

**ESTIMATED DURATION
FROM START UP:**

3 Months

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Identify research needs to overcome technical and process barriers to reduce, reuse and recycle paper & paper products and to aid in market development.	WRO	AMRC, CPPA, NGO's, PPEC, Federal & Provincial Gov'ts
2.	Identify funding organizations.	WRO	"
3.	Maintain reference collection on research and development for paper fibre.	WRO	"
4.	Develop protocol for determining research needs for use by research and funding organizations.	WRO	"

ACTION PLAN No. 9:**DEVELOP A STRATEGY AND ACTION PLAN FOR ADDRESSING THE ENVIRONMENTAL ISSUES ASSOCIATED WITH PRINT ADVERTISING.****BRIEF DESCRIPTION:**

The Print Advertising Committee was established to address environmental concerns associated with the Canadian print advertising industry's operations and to maximize the diversion of print advertising material from disposal through reduction, reuse and recycling. The PAC is developing a strategy to address these issues.

**ESTIMATED DURATION
FROM START UP:**

6 Months

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Develop a code of practice for 3Rs in the print advertising industry.	PAC *	AMRC, OWMA, OMMRI, CPPA **
2.	Identify strategy.	"	
3.	Develop action plan to implement strategy.	PAC	
4.	Table for adoption by industry associations.	CPC, CPPA, CCNA, CDMA, CMPA, CPIA, EMIC, RCC **	
5.	Use by member companies within the industry.		

* Print Advertising Committee

** Organizations represented on PAC

ACTION PLAN No. 10:**EXPAND "DO NOT MAIL" SERVICE.****BRIEF DESCRIPTION:**

Access to "Do Not Mail" services needs to be expanded both within Canada and in the case of U.S.-based mailers whose material reaches Canadian households. Expanding the access to these services will contribute to the reduction of unsolicited addressed advertising delivered to Ontario households.

**ESTIMATED DURATION
FROM START UP:**

6 Months

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Initiate actions to increase participation in the CDMA "Do not Mail" programs through membership recruitment.	CDMA	
2.	Investigate methods of increasing access by non-CDMA member Canadian mailers as voluntary participants in the "Do not Mail" program.	CDMA	
3.	Investigate development of a formal tie with the Direct Marketing Association (USA) whereby its members that mail to Canada would accept Canadian household requests in their voluntary "Do not Mail" program.	CDMA, American DMA	

ACTION PLAN No. 11:

RETURN OF CORRUGATED SHIPPING CONTAINERS FOR REUSE AND / OR RECYCLING.

BRIEF DESCRIPTION:

Encourage retailers to take back, for reuse and/or recycling, the shipping containers used to deliver goods to households.

ESTIMATED DURATION
FROM START UP:

8 Months

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Meet with major companies to determine the barriers to trucks taking OCC packaging in their return trip to their outlet for reuse and/or recycling.	Retail Council, Grocery Product Distributors	WRO, National Packaging Task Force
2.	Assess the barriers and develop options or a plan to overcome the problems.	"	WRO
3.	Establish a demonstration project with a large retailer or in a specific city;	"	WRO
4.	Persuade other members to follow the same practice.	"	

ACTION PLAN No. 12:

MUNICIPAL SOURCE SEPARATION - INCREASING PAPER COLLECTED
AND CAPTURED.

BRIEF DESCRIPTION:

Once the provincial regulations are enacted, municipalities greater than 5,000 population will be required to source separate ONP. A supplementary list of materials requiring source separation has been established and includes magazines, fine paper, telephone directories, OCC, cardboard and/or paper cups and plates in addition to other non-paper materials. Two of the materials on the supplementary list must be separated. Multi-unit dwellings (apartments) with more than six units will also be required to source separate. However, to maximize paper diversion, the capture from each household must also increase. Education material will help to achieve this goal.

ESTIMATED DURATION
FROM START UP:

Ongoing

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Assess the diversion being achieved and the barriers (demographics, demand, costs, infrastructure) to increasing the number of materials.	AMRC	WRO, PPEC, OMMRI,
2.	Develop options for facilitating the removal of barriers.	AMRC	"
3.	Make recommendations to the appropriate agency for effective removal of barriers.	AMRC	"
4.	Monitor the materials being added to curbside programs through the regulations.	WRO	AMRC
5.	Determine the feasibility of commingling paper materials, and adding materials to programs.	AMRC	Mills, OMMRI, PPEC, WRO
6.	Review potential for depot collection of materials not collected curbside, and investigate partnerships with IC&I establishments.	AMRC	OMMRI, PPEC, WRO
7.	Asses diversion and potential for further diversion.	WRO, AMRC	OMMRI, PPEC

ACTION PLAN No. 13:

INCREASE IC&I SOURCE SEPARATION.

BRIEF DESCRIPTION:

The IC&I sectors are major sources of paper. Incentives at domestic landfill sites have served to increase diversion. Once the 3Rs regulations are in place, the achievements will be monitored and depending upon diversion achieved, options will be developed for the next step in diverting more paper from these sources.

ESTIMATED DURATION
FROM START UP:

18 Months

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Implement incentives (at municipal landfill sites and regulatory) to encourage diversion of paper and develop infrastructure.	WRO, OWMA	AMO, AMRC
2.	Monitor the intent of the incentives for their ability to achieve diversion.	WRO	OWMA, CPPA, PPEC
3.	Develop options to increase paper diversion, if required.	OWMA	WRO
4.	Submit recommended options to appropriate body.	OWMA	WRO

ACTION PLAN No. 14:**SUPPORT BANS FROM MUNICIPAL LANDFILLS WHERE DIVERSION PROGRAMS EXIST.****BRIEF DESCRIPTION:**

In the past, incentives such as high tipping fees and bans at landfill sites have played an important role in encouraging diversion. In areas where waste diversion programs exist, bans could continue to divert large quantities of specific paper and paper products.

**ESTIMATED DURATION
FROM START UP:**

2 Months

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Identify area specific issues related to high paper generation from the IC&I sector.	AMRC	AMO, OWMA, RCO, PPEC
2.	Identify existing bans for paper related waste.	AMRC	
3.	Establish criteria which would trigger recommendation of a ban.	AMRC	WRO
4.	Recommend bans on high volume IC&I paper waste.	AMRC	RCO

ACTION PLAN No. 15:**DESIGN AND DELIVER MARKET DEVELOPMENT WORKSHOPS.****BRIEF DESCRIPTION:**

Entrepreneurs and local economic development groups need exposure to growing 3Rs opportunities. The purpose of this plan is to accelerate market demand for secondary materials by stimulating local Economic Development Councils to promote investment in reuse and recycling ventures.

**EXPECTED DURATION
FROM START UP:**

9 - 12 Months

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Target a community (Hamilton - Wentworth) interested in the concept and prepared to host a workshop.	WRO	Hamilton - Wentworth
2.	Develop terms of reference for pilot workshop on market development for secondary materials.	WRO	"
3.	Deliver the pilot workshop.	WRO	Hamilton Wentworth, Consultant
4.	Evaluate the pilot workshop design and modify for widespread use across Ontario.	WRO	Hamilton Wentworth, MEDT
5.	Develop a plan for delivering market development workshops in targeted communities across Ontario.	WRO	MEDT, AMRC
6.	Deliver series of workshops.	MEDT	Consultant, WRO

ACTION PLAN No. 16:**COORDINATE TASK GROUPS TO FURTHER DIVERT OBB AND OCC FROM THE WASTE STREAM.****BRIEF DESCRIPTION:**

To maximize the recycling and recyclability of boxboard and corrugated containers, task groups that include brandowners, mills and other pertinent organization representatives will work together to overcome barriers to the 3Rs. A Boxboard Task Group established by PPEC (Paper & Paperboard Packaging Environmental Council) and OMMRI: Corporations in Support of Recycling has made significant strides in identifying the issues and working toward reducing and recycling boxboard. The same approach will be taken with OCC.

**EXPECTED DURATION
FROM START UP:**

Ongoing

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	First meeting of mill/converter representatives.	PPEC	
2.	Collection of mill/converter data.	PPEC	
3.	Presentation and discussion of data.	PPEC	
4.	Addition of brandowners and other stakeholders to group.	PPEC	GPMC, OMMRI, AMRC, WRO, OWMA
5.	Identify issues, goal and approach.	PPEC	
6.	Formulate and undertake actions for increasing diversion.	PPEC, (OCC/Kraft', Task Group)	

ACTION PLAN No. 17:

MAXIMIZE USAGE OF OLD BOXBOARD IN ALL BOXBOARD PACKAGING.

BRIEF DESCRIPTION:

Old boxboard is currently used as filler in some detergent packaging. More brandowners need to use OBB and support an increase in the percent OBB used in non-food packaging applications. Concurrently, continued use of OBB in food packaging is required so that OBB can be used in this large application. Through these two approaches, the goal is to effect regular and maximum usage of OBB in all boxboard packaging.

EXPECTED DURATION FROM START UP:

9 Months

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Publicize forecast survey (supply & demand) among brandowners and municipalities.	PPEC, OMMRI	GPMC, RCC, AMRC etc.
2.	Continue "show & tells" to brandowner organizations.	PPEC	GPMC, RCC, CCGD, Industry Associations
3.	Continue food grade testing (need 24 hour trial); test increasing levels of OBB in package as supply is available.	PPEC	HWC
4.	Disseminate food packaging test information.	PPEC	
5.	Specify OBB content in package.	Brandowners	

ACTION PLAN No. 18:

**DEVELOP MARKETS FOR LOW GRADE SECONDARY PAPER FIBRE;
ETHANOL AND HEATING OIL CONVERSION; HOME INSULATION;
BUILDING MATERIALS; ANIMAL FEED.**

BRIEF DESCRIPTION:

The production of ethanol and heating oil, the manufacture of home insulation and building materials and use of papers for animal feed or bedding are all technically feasible. However, more research and development is required to prove this on a commercial scale.

**EXPECTED DURATION
FROM START UP:**

Ongoing as required

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Assess project proposals.	PPEC	EMRC, MOEE, HWC, Building Associations, Agriculture Canada
2.	Discuss and refine proposals.	PPEC	"
3.	Undertake target feasibility or development studies.	PPEC	"
4.	Evaluate studies and determine next steps.	PPEC	"

ACTION PLAN No. 19:

IDENTIFY AND ESTABLISH OPTIONS FOR MANAGING PAPER MILL RESIDUE.

BRIEF DESCRIPTION:

When secondary paper/material is used in the production of new paper products, short paper fibres and in some mills, clay, is lost in the process. This material is recovered and currently is either spread on agricultural land, landfilled, incinerated or composted. To ensure greater diversion from landfill, alternate management methods should be developed.

EXPECTED DURATION FROM STAR UP:

1 - 2 Years

STEP NO.	KEY STEPS	SUGGESTED LEAD AGENCY	ORGANIZATIONAL LINKAGES
1.	Assemble mill representatives and other affected parties to discuss barriers, potential options and research needs.	WRO	Environment Canada, MOEE, Affected mills, PPEC
2.	Evaluate options and determine research or development needs.	Affected mills	Environment Canada, MOEE, PPEC
3.	Run tests, evaluate results.	"	Consultant, MOEE, PPEC, Other Agencies
4.	Develop option for commercial use.	"	MOEE

Appendix D: Action Plan Schedule

Section	Action Plan	Duration*
Education and Information 1. 2. 3. 4. 5. 6. 7. 8.	Establish Database	2 months
	Establish Milestones	6 months
	Catalogue Reference Material	4 months
	Develop Municipal 3Rs Education Material	8 months
	Develop IC&I 3Rs Education Material	8 months
	Develop Procurement Policy Guide	9 months
	Adopt Industry Code of Practice	6 months
	Inventory Funding and Research Organizations To Promote Research Needs	3 months
Reduction and Reuse 9. 10. 11.	Print Advertising Strategy	6 months
	Expand "Do Not Mail" Service	6 months
	OCC Return for Reuse	8 months
Market and Infrastructure Development 12. 13. 14. 15. 16. 17. 18.	Increase Municipal Source Separation	on going
	Increase IC&I Source Separation	18 months
	Support Municipal Landfill Bans	2 months
	Design and Deliver Market Development Workshops	9 - 12 months
	Coordinate OCC and Boxboard Task Groups	on going
	Maximize OBB in Boxboard Packaging	9 months
	Develop Market Options	on going
Residue Management 19.	Develop Residue Management Options	1 - 2 years

* Estimated duration from an unspecified start date.

Appendix E: National Packaging Protocol

The federal, provincial and municipal governments, industry, consumer and public interest groups, working through the Canadian Council of the Ministers of the Environment (CCME), have developed a national strategy to manage packaging. Their goal is to reduce the amount of packaging from IC&I and residential sectors that is sent to disposal.

On March 20, 1990, the CCME endorsed the National Packaging Protocol -- a policy framework that incorporates a series of waste diversion targets. The protocol states the amount of packaging sent to disposal must be reduced by 20 per cent by 1992, 35 per cent by 1996 and 50 per cent by the year 2000. The reduction targets are based on weight and use 1988 as the base year.

At least half of the amount of packaging diverted from disposal should be achieved through source reduction and reuse initiatives. Recycling initiatives should make up the remaining amount.

The following policies guide the protocol's implementation:

- Packaging shall have minimal effects on the environment.
- Priority will be given to the management of packaging through source reduction, reuse and recycling.
- Information and education campaigns will be undertaken to make all Canadians aware of the function and environmental impact of packaging.
- Policies developed will apply to all packaging used in Canada, including imports.
- Regulations will be implemented as necessary.
- Government policies and practices affecting packaging will be consistent with these national policies.

A code of preferred Canadian packaging practices was developed to guide the selection and design of packaging. The

code is based on the following waste management hierarchy: no packaging, minimal packaging, reusable packaging, recyclable packaging and packaging containing recyclable materials.

National minimum content standards will be developed to include post-consumer materials in packaging. These standards will also consider such things as: health and safety concerns, packaging performance requirements and regional limitations.

Appendix F: Ontario's 3Rs Regulations

In April 1993, the Ontario Ministry of Environment and Energy announced its intent to implement their proposed 3Rs regulations.

The regulations are designed to divert about two million tonnes of municipal solid waste from Ontario's landfills each year. This will help the government achieve the provincial waste reduction target - to reduce the amount of waste going to disposal by at least 50 per cent by the year 2000.

Designated IC&I waste generators --including manufacturers, retail shopping complexes, schools, hospitals, construction and demolition projects, offices, restaurants and hotels-- will have to carry out annual waste audits and waste reduction work plans. They will also be required to set up source separation and recycling programs for designated categories of solid waste.

The audits are to measure the amount, nature and composition of the waste generated, how it is produced (including management policies that affect their production), and the ways it is managed. The work plans must describe specific 3Rs activities, who is responsible for each part of the plan, the scheduled timelines, and the expected results.

Major packaging users in the food, beverage, paper and chemical manufacturing sectors, and large importers of these products will also be required to carry out packaging audits and prepare reduction work plans.

Manufacturing establishments where employees work more than 16000 hours per month must source separate the following paper products: old corrugated containers, fine paper and old newspapers. Each of the other designated large IC&I waste generators has a similar list of solid wastes that must be separated for recycling.

All municipalities with 5,000 or more inhabitants must have a Blue Box recycling program in place. Curbside recycling systems are required wherever a municipality provides curbside garbage

collection. The system must handle old newspapers, food and beverage containers (made of aluminum, glass, steel or polyethylene terephthalate), as well as at least two more materials selected from a supplementary list of recyclables. These materials include: boxboard, corrugated containers, fine paper, magazines, telephone books, paper cups and plates, aluminum foil, foam plastics, plastic film, rigid plastic containers, textiles and "tetrapak" type containers.

Municipalities will also be required to implement backyard compost programs and leaf and yard waste composting systems.

Recycling facilities may also be eligible to receive an exemption from the current approvals process required under the *Environmental Protection Act*.

The regulations are scheduled to become law in August 1993. The audit and work plan provisions will take effect six months after this date, the source separation and recycling requirements in 12 months and the municipal requirements by July 1, 1994 (except for municipalities in Northern Ontario, which have been given up to July 1, 1996 to comply).

